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Notes on some of the Chemical Reactions of Codeine, Meconine, Narceine, and Aconitine. By T. G. WORMLEY, M.D.

CODEINE.

It is well known that *codeine*, *meconine* and *narceine*, form three of the proximate principles obtained from opium. The specimens examined were prepared by E. Merck, of Darmstadt, and were apparently perfectly pure.

The *codeine* was in large transparent colorless crystals. A saturated water solution of the alkaloid has a strong alkaline reaction. In the following investigations, the solutions were exactly neutralized by acetic acid. The fractions refer to the fractional part of a grain of codeine in solution in one grain of water; when not otherwise stated, the reagents were applied to a single grain of the solution, contained on a glass slide or in a watch crystal.

1. IODINE IN IODIDE OF POTASSIUM.

The reagent used, was prepared by dissolving twenty-four grains of iodide of potassium in one fluid ounce of water, and then adding to the mixture eight grains of pure iodine.

1. $\frac{1}{100}$th grain of codeine in one grain of water, gives, with a small drop of the reagent, an immediate copious deep red brown amorphous precipitate, which, after a time, becomes crystalline, especially if the drop be somewhat distributed by means of a glass rod. The precipitate is readily soluble in alcohol, from which it is soon redeposited in a different crystalline form: the latter crystals are especially beautiful when viewed with polarized light.

XUM

2. $\frac{1}{1000}$th, gives much the same as in 1.

3. $\frac{1}{10000}$th, yields a very good reddish yellow deposit.

4. $\frac{1}{20000}$th, a good yellowish precipitate.

5. $\frac{1}{100000}$th, gives a very fair deposit; better than the same quantity of any alkaloid that we have examined.

6. $\frac{1}{200000}$th, a perceptible cloudiness.

2. Bromine in Bromohydric Acid.

The reagent was prepared, by saturating a strong solution of bromohydric acid, with bromine.

1. $\frac{1}{100}$th grain of codeine, yields with the reagent, a copious bright yellow pulverulent precipitate, which, after a time, dissolves, but is reprecipitated upon the addition of more reagent. The precipitate furnishes no crystals.

2. $\frac{1}{1000}$th, a copious yellow deposit.

3. $\frac{1}{10000}$th, gives a fair yellow precipitate.

4. $\frac{1}{25000}$th, furnishes a very perceptible cloudiness.

3. Chloride of Gold.

1. $\frac{1}{100}$th grain gives a copious orange colored amorphous precipitate, which upon the addition of a small drop of a strong solution of potash, is changed to bluish black.

2. $\frac{1}{1000}$th, gives a very good yellow precipitate, which dissolves in a drop of potash solution, leaving a few bluish flakes.

3. $\frac{1}{2500}$th, a pretty good precipitate.

4. $\frac{1}{5000}$th, immediately a perceptible cloudiness, which improves and soon becomes quite distinct.

4. Bichloride of Platinum.

1. $\frac{1}{100}$th grain of codeine, gives immediately a copious amorphous precipitate, which is readily soluble in acetic acid, but unchanged by potash.

2. $\frac{1}{500}$th, after several minutes a partly granular yellow ring forms around the margin of the drop.

5. Sulphocyanide of Potassium.

1. $\frac{1}{100}$th grain, gives no immediate precipitate, but after standing a few minutes, crystalline needles begin to separate, these increase, and after a little time the drop is a mass of groups of needles.

If the mixture is stirred with a glass rod, crystals begin to form immediately, and in a little time the drop becomes a mass of crystals.

2. $\frac{1}{1000}$th, by stirring the drop, after a few minutes crystals can be seen with the microscope, which soon become quite perceptible to the eye. They form principally along the margin of the drop.

6. Iodide of Potassium.

1. $\frac{1}{1000}$th, immediately crystalline needles appear, and soon there is a copious deposit. By stirring the mixture, in a little time it becomes a mass of crystals.

2. $\frac{1}{3000}$th, after stirring the mixture for a few minutes, it gives a perceptible crystalline precipitate.

7. Bichromate of Potash.

1. $\frac{1}{1000}$th, no precipitate even by stirring, but after standing several minutes, crystalline tufts begin to separate, these increase, and soon the drop becomes a mass of crystals.

The protochromate of potash gives no precipitate.

8. Carbazotic Acid.

1. $\frac{1}{1000}$th grain of codeine, yields, with a drop of a strong alcoholic solution of carbazotic acid, a copious yellow precipitate, which remains amorphous.

2. $\frac{1}{1000}$th, gives a quite good yellow deposit.

3. $\frac{1}{3000}$th, no immediate indication, but after a little time, a quite good cloudiness.

9. Potash.

1. $\frac{1}{1000}$th grain of codeine, gives with a small drop of potash solution, a rather good white pulverulent precipitate, which remains amorphous.

10. Nitric Acid.

A few crystals of codeine, introduced into a drop of nitric acid of sp. gr. 1.40, become orange red, and slowly dissolve to a yellow solution, with the evolution of hyponitric acid. The addition of a drop of potash solution, produces a white precipitate; and when the mixture is evaporated to dryness, it leaves a yellow residue.

The addition of a few drops of nitric acid to a strong *solution* of codeine, turns it faintly yellow.

1. $\frac{1}{1000}$th grain of codeine as acetate, evaporated in a water bath, leaves a glacial residue, which, after it has cooled, if acted upon by a drop of strong nitric acid, becomes red-yellow, and dissolves with a yellow solution. This solution evaporated on a wa-

ter bath, leaves a yellow residue, which when cold and acted upon by a drop of potash solution, changes to a beautiful orange, and partially dissolves with a solution of the same color which is permanent.

2. $\frac{1}{1600}$th, evaporated, leaves a glacial residue, which, after it has cooled, dissolves in a drop of nitric acid, with an orange tint, and gives a yellow solution. This evaporated leaves a slight yellow residue, which with potash is changed to very good orange and partially dissolves with an orange solution.

3. $\frac{1}{3000}$th, residue, treated with nitric acid and evaporated leaves a pale yellow deposit, which when treated with a small drop of potash, is but little changed, but if the potash mixture is evaporated, it leaves a fine yellow orange deposit, mixed with some few crystals of a potash salt.

4. $\frac{1}{16000}$th, treated exactly as in 3, leaves after evaporation with the potash, a yellow orange deposit, mixed with crystals of a potash salt. A drop of water will readily dissolve the crystals, and leave yellow orange flakes, with a yellow orange solution, which remains unchanged for some hours.

A $\frac{1}{1000}$th residue dissolved in a drop of nitric acid, and then a drop of chloride of tin solution added, gives a pale red solution, which soon changes to yellow. This solution shows no change when heated, and when evaporated, leaves a yellow residue.

11. Sulphuric Acid.

1. $\frac{1}{1600}$th evaporated to dryness, and the residue treated with a drop of concentrated sulphuric acid, dissolves with a yellow solution. If the mixture is then heated on a water bath, it changes to a beautiful purple.

The sulphuric acid solution of a $\frac{1}{1000}$th residue, when acted upon by a small crystal of nitrate of potash, yields a dirty-red green solution, which when heated changes sometimes to a beautiful red orange, at others to a brown color, depending upon the amount of acid, nitre, and heat applied.

2. $\frac{1}{16000}$th residue, treated with a small drop of sulphuric acid, and exposed to a heat a little above that of the water bath, gives a good purple solution. The result, however, is much influenced by the amount of acid and heat applied.

12. Solubility.

1. *In Water.* According to Robiquet, 100 parts of water at 59°

F., dissolves 1.26 parts codeine. This would be equivalent to 1 part of codeine in 80 parts of water.

An excess of powdered codeine was digested with distilled water with frequent agitation for 15 hours, at a temperature varying from 50° to 55° F. After filtering, the filtrate evaporated to dryness left a crystalline residue, corresponding to 1 part of codeine in 128 parts of water. The alkaloid is more soluble in hot water, from which it separates in crystals as the solution cools.

2. *Absolute Ether.* Excess of powdered codeine was digested with ether under the same circumstances as above. 100 grains of the filtrate left by spontaneous evaporation a crystalline residue, which, after being heated in a water bath, weighed 1.825 grains. This would indicate that 1 part of codeine had dissolved in 54.8 parts of absolute ether.

3. *Chloroform*, under the same circumstances, dissolved 1 part of codeine in 21.5 of chloroform.

The alkaloid is very soluble in alcohol.

Corrosive sublimate, ferro and ferricyanide of potassium, nitrate of silver and sulphate of copper, yield no precipitates with a $\frac{1}{100}$ solution of codeine.

MECONINE.

The meconine examined, was in beautiful snow-white crystals. Meconine is a perfectly neutral body, its aqueous solution has no effect upon litmus. In the following investigations the substance was dissolved directly in water.

1. IODINE IN IODIDE OF POTASSIUM.

1. $\frac{1}{1000}$th grain of meconine dissolved in one grain of water, gives with the reagent an immediate copious yellow brown precipitate, which very soon becomes darker, and soon changes to a yellow crystalline deposit, which when dry resembles spangles of gold dust. The precipitate dissolves readily in alcohol, from which it does not separate, as in the case of codeine; nor does the alcoholic solution when treated with acetic acid furnish crystals.

2. $\frac{1}{10000}$th yields a good yellow brown precipitate, which soon becomes darker from the separation of granules of iodine.

3. $\frac{1}{20000}$th, no indication for some time, then, a slight cloudiness, followed by dark granules.

2. BROMINE IN BROMOHYDRIC ACID.

1. $\frac{1}{3000}$th, after a few moments, crystals begin to form, which in

a little time increase to a quite copious yellowish deposit of short needles and groups of hair-like crystals. When excess of reagent is used, the deposit consists principally of short needles; deficiency of reagent, yields the hair-like groups. After a time the crystals become colorless. The deposit is insoluble in several drops of acetic acid; slowly dissolves in large excess of alcohol. The alcoholic solution treated with acetic acid yields no crystals, even after standing for some time.

2. $\frac{1}{10000}$th, in a very little time, a quite good crystalline deposit as above.

3. $\frac{1}{25000}$th, after a little time, a very satisfactory crystalline precipitate, of the same character as above.

4. $\frac{1}{50000}$th, no indication after standing some time.

The above is quite a characteristic reaction of meconine.

3. Sulphuric Acid.

If a few crystals of meconine be added to a small drop of concentrated sulphuric acid, they become yellow, and dissolve with a slight yellow or clear solution, which when heated changes to a deep and beautiful blue.

1. $\frac{1}{2000}$th solution evaporated in a watch glass, and the residue moistened with a small quantity of sulphuric acid and then heated over the flame of a spirit-lamp, becomes an intense blue and dissolves with a solution of the same color.

2. $\frac{1}{10000}$th dry; when moistened with acid and heated, yields much the same as 1.

For the success of this reaction, it is essential that the least possible quantity of acid be applied to the residue; this is best done by means of a glass rod moistened with the acid. The mixture is then heated over the flame of a spirit-lamp until the residue begins to change to blue, which does not take place until vapors of the acid begin to be evolved, the heat is then discontinued.

3. $\frac{1}{10000}$th, treated as above, yields quite satisfactory results.

4. $\frac{1}{25000}$th, if the deposit is not much scattered, yields a very distinct blue.

4. Sulphuric Acid and Nitrate of Potash.

When a few crystals of meconine are dissolved in a drop of concentrated sulphuric acid, and then a few crystals of nitrate of potash—more than the meconine used—be stirred in the acid mix-

ture, it immediately becomes yellow, and very soon changes to beautiful scarlet orange, which very slowly fades. If the mixture is heated the orange color is soon discharged, with effervescence, becoming yellow.

The smallest crystal of meconine, with a quite small drop of acid, and excess of nitrate of potash, yields a good amber color, which very slowly fades to faint yellow.

Bichromate of potash crystal, stirred in a sulphuric acid solution of meconine, yields only a slight yellow solution, which, when heated, changes to greenish.

5. NITRIC ACID.

When a few crystals of meconine are added to a drop of strong nitric acid, they dissolve with a clear solution, which suffers no change of color upon the application of heat. The solution is unaffected by a drop of chloride of tin solution.

6. SOLUBILITY.

1. *In water.* Water was heated with excess of meconine, and the mixture allowed to stand at a temperature of about 50° F. for several hours. 100 grains of the filtered fluid left upon evaporation a crystalline residue of .18 grains. This would indicate that 1 part of meconine requires 555 parts of water at 50° to dissolve it. At 60° 1 part of meconine remains dissolved in 500 parts of water.

One part of meconine will dissolve in 100 parts of hot water, but as soon as the solution begins to cool, it begins to separate in crystals.

2. *Absolute ether*, was digested for 15 hours at 50° with excess of meconine, after filtering and evaporating, it left a fine crystalline residue, indicating that 1 part of meconine had dissolved in 136 parts of the ether.

3. *Chloroform*, at the ordinary temperature, will readily dissolve $\frac{1}{10}$th of its weight of meconine.

Potash, iodide of potassium, chromate and bichromate of potash, sulphocyanide of potassium, ferro and ferricyanide of potassium, chloride of gold, bichloride of platinum, carbazotic acid and corrosive sublimate, yield no precipitate with a $\frac{1}{1000}$th solution of meconine.

NARCEINE.

The narceine examined was in beautiful silky crystals. A saturated aqueous solution of the substance is perfectly neutral. The

solutions in the following experiments were prepared by dissolving the narceine in pure water, when necessary by the aid of heat.

1. Solubility.

1. *In water.* Excess of narceine was digested, with frequent agitation, for 24 hours in water at a temperature varying from 60° to 65° F. 166 grains of the filtered fluid left a crystalline residue of .10 grains. This would indicate that 1 part of narceine required 1660 parts of water at 65° to dissolve it.

Although the substance is thus sparingly soluble in cold water, it dissolves much more readily when heated, and it is but slowly deposited from the solution as it cools. One part of narceine will dissolve in 500 parts of water, as soon as the mixture is brought to the boiling point, and the solution may then be exposed to 55° without any narceine separating for nearly half an hour. A $\frac{1}{1000}$th solution may stand some hours at 45° before it begins to deposit crystals.

2. *Chloroform.* Excess of narceine digested for 24 hours at 65°, left a residue indicating that 1 part of narceine required 7950 parts by weight of chloroform to dissolve it.

3. *Absolute ether,* treated for 24 hours with narceine, as above, left a residue indicating that 1 part required 4066 parts of ether to dissolve it.

2. Iodine in Iodide of Potassium.

1. $\frac{1}{3000}$th grain of narceine in one grain of water, gives with the reagent, an immediate copious red-yellow amorphous precipitate, which soon changes to a mass of delicate crystalline tufts; soluble in large excess of acetic acid, except a slight residue of amorphous matter. The precipitate dissolves readily in alcohol, from which, however, almost immediately, the same crystalline tufts as above begin to separate, and after a little time there is a good deposit.

2. $\frac{1}{1000}$th yields a good yellow deposit, which soon becomes beautiful crystalline tufts.

3. $\frac{1}{2000}$th, with a small drop of the reagent, after a little time a rather good yellow deposit of somewhat larger crystalline tufts than from 2.

4. $\frac{1}{3000}$th yields after a time some few tufts of crystals; it requires, however, the proper adjustment of reagent, otherwise crystals will not form.

3. Bromine in Bromohydric Acid.

1. $\frac{1}{100}$th yields a copious yellow amorphous precipitate, which after a time dissolves, but is reprecipitated upon the addition of more reagent. The precipitate yields no crystals.

2. $\frac{1}{1000}$th gives a copious yellow precipitate which is readily soluble in alcohol, and also in a few drops of acetic acid.

3. $\frac{1}{500}$th, a good yellow precipitate, which after a time dissolves but is reproduced upon the farther addition of reagent.

4. $\frac{1}{1000}$th, in a few moments a precipitate begins, and soon there is a good yellow deposit.

5. $\frac{1}{2000}$th, after a time there is a quite perceptible cloudiness

4. Carbazotic Acid.

1. $\frac{1}{100}$th yields with an alcoholic solution of the reagent, an immediate copious yellow amorphous precipitate, which does not crystallize.

2. $\frac{1}{1000}$th, an immediate precipitate; soluble in a few drops of acetic acid.

3. $\frac{1}{2500}$th, a good yellow deposit.

4. $\frac{1}{2000}$th, in a very little time, a fair yellow amorphous precipitate.

5. Chloride of Gold.

1. $\frac{1}{200}$th gives with the reagent, a rather copious yellow flocculent precipitate, which readily dissolves, with a clear solution, in a drop of potash solution.

2. $\frac{1}{1000}$th, much as in 1. 5 grains of the solution in a small test tube, treated with the reagent, and the mixture heated, the precipitate dissolves without any change of color, but it is immediately redeposited upon cooling.

3. $\frac{1}{700}$th yields a fair yellow deposit.

4. $\frac{1}{1000}$th, after a little time, there is a quite perceptible cloudiness, which soon becomes quite satisfactory.

None of the above deposits become crystalline.

6. Bichloride of Platinum.

1. $\frac{1}{300}$th yields, with a small drop of the reagent, a fine flocculent precipitate.

2. $\frac{1}{1000}$th gives no indication.

7. Bichromate of Potash.

1. $\frac{1}{300}$th gives no immediate precipitate, but soon crystalline

bushes begin to separate, which after a little become a crystalline mass.

2. $\frac{1}{10000}$th, no indication.

Protochromate of potash gives no indication in a $\frac{1}{1000}$th solution.

8. Sulphocyanide of Potassium.

$\frac{1}{1000}$th grain of narceine, yields a slight flocculent precipitate.

9. Sulphuric Acid.

When a few crystals of narceine are placed in a drop of concentrated sulphuric acid, they immediately become red-brown, and dissolve with a reddish or reddish-yellow solution.

1. $\frac{1}{5000}$th residue in a watch glass, with a drop of sulphuric acid, becomes reddish yellow and dissolves with a yellowish solution, which when heated changes to a deep red color. However, the final color will depend somewhat upon the amount of heat and acid applied.

2. $\frac{1}{10000}$th residue, changes to a yellow upon the addition of a small drop of the acid, and gives a faint yellow solution, which when heated becomes reddish brown.

3. $\frac{1}{20000}$th residue with a small drop of acid, becomes distinctly yellow, and when heated changes to a rose tint.

When the quantity of narceine is small, the final color is much influenced by the amount of acid and heat applied.

10. Sulphuric Acid and Nitrate of Potash.

When a few crystals of narceine are dissolved in a drop of sulphuric acid, and then a crystal of nitre stirred in the mixture, it yields a reddish brown, violet, or purple solution, depending upon the quantity of the different substances used. The color is discharged upon the application of heat.

Bichromate of potash crystal, when stirred in a sulphuric acid solution of narceine, changes the solution to a dirty red color, which is changed to green by heat.

11. Nitric Acid.

A few crystals of narceine dropped into strong nitric acid, immediately become orange yellow, which quickly change to yellow, and dissolve with a faint yellow solution, which when heated suffers little or no change.

A nitric acid solution of narceine is unaffected by chloride of tin solution, even by heat.

None of the following reagents yield a precipitate with a $\frac{1}{300}$th solution of narceine: ferro nor ferricyanide of potassium, iodide of potassium, nitrate of silver nor corrosive sublimate.

ACONITINE.

The aconitine examined was prepared by Morson. It had a whitish color, and under the microscope appeared as granular masses; no distinct crystals were observed.

In the following examinations the alkaloid was dissolved by the aid of just sufficient hydrochloric acid.

1. Potash.

1. $\frac{1}{100}$th grain of aconitine in one grain of water, gives with a small drop of potash solution, an immediate dirty white flocculent precipitate, which is insoluble in large excess of reagent.
2. $\frac{1}{300}$th yields a similar precipitate, not readily soluble in several drops of potash solution.
3. $\frac{1}{1000}$th, no indication.

2. Ammonia.

1. $\frac{1}{100}$th gives a dirty white precipitate, not readily soluble in several drops of reagent.
2. $\frac{1}{300}$th, only a slight precipitate.

3. Chloride of Gold.

1. $\frac{1}{100}$th gives an immediate copious light yellow amorphous precipitate.
2. $\frac{1}{1000}$th yields a quite good deposit, which is readily soluble in potash.
3. $\frac{1}{3300}$th, immediately a precipitate begins, which in a little time becomes quite good.
4. $\frac{1}{2000}$th, very soon, a fair precipitate.
5. $\frac{1}{10000}$th, in a little time, a quite perceptible deposit.
6. $\frac{1}{20000}$th, after a little time, a just perceptible cloudiness, which does not become very satisfactory.

4. Carbazotic Acid.

1. $\frac{1}{100}$th, gives a copious greenish yellow amorphous precipitate.
2. $\frac{1}{1000}$th, a pretty fair greenish deposit.
3. $\frac{1}{10000}$th, in a very little time, a perceptible precipitate.

5. Corrosive Sublimate.

1. $\frac{1}{100}$th yields a very good dirty white precipitate.
2. $\frac{1}{300}$th, no indication.

6. Iodine in Iodide of Potassium.

1. $\frac{1}{100}$th yields a copious red-brown amorphous precipitate, which is insoluble in large excess of potash.
2. $\frac{1}{1000}$th, a copious yellowish precipitate, soluble in a drop of potash solution, with a white precipitate.
3. $\frac{1}{10000}$th gives a good precipitate.
4. $\frac{1}{30000}$th, a quite distinct reaction.
5. $\frac{1}{100000}$th gives a perceptible cloudiness.

7. Bromine in Bromohydric Acid.

1. $\frac{1}{100}$th yields a copious yellow amorphous precipitate.
2. $\frac{1}{1000}$th, a good yellow deposit.
3. $\frac{1}{10000}$th, much as 2.
4. $\frac{1}{30000}$th gives a quite perceptible cloudiness.

8. Sulphuric Acid.

A small quantity of aconitine, when placed in a small drop of sulphuric acid, assumes a yellow color, and dissolves without any marked change; a small crystal of nitrate of potash stirred in the mixture produces no visible effect, even upon the application of heat.

Nitric acid dissolves the alkaloid with a faint yellow color, and the solution is unchanged by heat, or the addition of a drop of chloride of tin solution.

9. Physiological Action.

The most characteristic action of aconitine, as first observed by Dr. Headland, is its effect upon the tongue. $\frac{1}{1000}$th grain in one grain of water, will cause a very decided tingling and numbness of that organ, which lasts for nearly an hour. The above quantity being administered to several persons, all pronounced the effect as very decided.

10. Solubility.

1. *Water* was digested with excess of aconitine for ten hours at 65°; after filtering, 107 grains of filtrate evaporated on a water bath, left a residue of .06 grains. This would indicate that aconitine requires 1783 times its weight of water at 65° to dissolve it.

The above residue was left as a hard transparent colorless pellicle, which when broken up, appeared as crystalline lamina.

2. *Absolute ether*, treated for several hours with excess of aconitine at 65°, left a transparent glacial residue, indicating that one part of aconitine requires 777 parts of ether for solution.

3. *Chloroform* dissolves the alkaloid freely in all proportions, and leaves it upon evaporation as a glacial residue.

Sulphocyanide of potassium produces a perceptible cloudiness with a $\frac{1}{700}$th solution of aconitine.

Bichloride of platinum, chromate of potash, bichromate of potash, iodide of potassium, ferro and ferricyanide of potassium, yield no precipitate with a $\frac{1}{100}$th solution of aconitine.

COLUMBUS, O.

Hydrated Sesquioxide of Iron as an antidote to poisoning by arsenious acid. By WM. WATT, M.D.

The hydrated sesquioxide of iron was proposed as an antidote for poisoning by arsenious acid in 1834, by Drs. Bunsen and Berthold, of Gottingen. These gentlemen discovered that if a solution of arsenious acid was agitated with a quantity of the hydrated sesquioxide of iron, that the former was precipitated in a very insoluble form. A knowledge of this fact induced them to make a number of experiments upon animals, in order to test its antidotal powers. Of these experiments they made favorable statements, which were afterward confirmed by the experiments of Orfila, Lesueur, Soubeiran, and others. Opposed to the evidence of these experimentalists, we have only the unfavorable results of Mr. Brett and those of Mr. Orton. It was afterward ascertained, however, that the amount of the antidote used by these gentlemen was uniformly too small. More recently Fasoli has made some experiments on dogs with the hydrated oxide. He states that having procured nineteen dogs, he administered arsenious acid to five of them without the antidote; they all died. To the others, arsenious acid being administered, was followed by the antidote, and they all recovered. Unfortunately, he does not state the amount of arsenic or antidote used in any of his cases. We have a number of cases recorded, in which it is claimed that this antidote has been the means of saving life in the human subject. However, in a majority

of the cases it was not known that the amount of arsenious acid taken would have been sufficient to have produced death.

When used as an antidote, it should be administered in its recently precipitated, gelatinous condition, as it appears to lose its neutralizing powers in proportion to the time it is kept. It is thought advisable, in order to insure its antidotal effects, to administer about twelve parts of the antidote to one of arsenious acid. But, as the antidote is incapable of producing any injurious effects, it may be administered in large quantities. According to Graham, the mutual reaction of the hydrated sesquioxide and the arsenious acid gives rise to the formation of the arseniate of the protoxide of iron. This change would be represented by the following formula:

$$2\,Fe_2O_3 + As_2O_3 = 4\,Fe\,O + As_2O_5$$

Taylor says that the hydrate is incapable of acting as an antidote when the arsenious acid has been taken into the stomach in the form of powder. The hydrated oxide, in order to act as an antidote to poisoning by the arsenic salts, requires to be combined with an acid, which may separate the base; then the arsenious acid and the oxide react on each other.

The above results being somewhat discrepant, we, at the suggestion of Professor Wormley, undertook a series of experiments in his laboratory, for the purpose of satisfying ourselves of the real value of the antidote in poisoning by arsenious acid when administered to dogs. We were kindly assisted in the experiments by Dr. Willis and Mr. Pinnell.

The antidote was prepared by precipitating the muriated tincture of iron of the shops with ammonia, filtering through muslin, and washing the filter until the washings were free from ammonia. The mass was then drained.

In administering the antidote about two table spoonsfull of the magma were given to each dog.

Before making any experiments as to the action of the antidote, it was thought advisable to ascertain the effect of the arsenious acid solution alone upon the animals. The first seven cases were, therefore, confined to the acid solution without the antidote.

In the first fifteen cases, the arsenious acid was in solution in the proportion of two grains of the acid in one fluid ounce of water.

Experiment 1st; weight of dog 50 lbs.—Two grains of arsenious acid administered; symptoms of pain came on in fifteen minutes; which

were followed in ten minutes more by vomiting, which continued about four or five hours, and were then followed by bloody purging. From this time the animal recovered.

Experiment 2d; weight 60 *lbs.*—Three grains administered; symptoms of pain came on in twenty minutes, and vomiting in about thirty minutes. The vomiting continued with great severity for about six hours; it then gradually ceased, and was followed by purging of blood, which continued about two days, during which time the animal refused to take any food. He finally recovered.

Experiment 3d; weight 18 *lbs.*—Three grains administered; symptoms came on in 15 minutes; the animal apparently suffered great pain, which he manifested by frequently changing his position, whining, &c. He did not vomit for about thirty minutes after the poison had been administered. The vomiting was continued and severe. The matters ejected consisted of a thick white frothy tenacious mucus, which the animal had great difficulty in expelling from the mouth. The vomiting ceased, and he gradually lost the use of his limbs, and died comatose, six hours after the poison had been administered.

Experiment 4th; weight 15 *lbs.*—Three grains administered; symptoms came on in fifteen minutes, followed in five minutes by vomiting, which continued about five hours. The animal died in eight hours after the administration of the arsenic.

Experiment 5th; weight 12 *lbs.*—Six grains administered, but part of the solution evidently passed into the trachea, as its administration was followed by strangulation, coughing, difficult breathing, etc.; vomiting came on almost immediately, and continued about an hour and a half, when the animal died.

Experiment 6th; weight 25 *lbs.*—Six grains administered. Symptoms of poisoning came on in eight minutes, followed immediately by vomiting and symptoms of pain. The vomiting which was very severe, at first consisted of a thick glairy mucus, but soon became mixed with a considerable amount of arterial blood. The animal died in about six hours.

Experiment 7th; weight 30 *lbs.*—Six grains administered. In about three minutes the animal showed evident signs of pain, and vomited in five minutes. The vomiting was severe, and continued almost without interruption for five hours, when it ceased, and the animal becoming comatose died.

Experiment 8th; young dog, weight 10 *lbs.*—Two grains ad-

ministered, followed in about five minutes by the antidote. The animal showed some signs of the action of the poison in about forty minutes, but did not vomit for about an hour; he then vomited once, after which he became stupid and was inclined to sleep. These symptoms continued for about three hours, after which he appeared perfectly well.

Experiment 9th; weight 15 *lbs.*—Three grains administered, followed immediately by the antidote. Symptoms of pain came on in thirty minutes, and vomiting in about one hour after the poison had been administered. The vomited matter consisted of the antidote mixed with the alimentary matter of the stomach. This animal recovered.

Experiment 10th; weight 12 *lbs.*—Three grains administered. This was followed in about ten minutes by the antidote. Symptoms of poisoning came on in thirty minutes after the arsenic was administered. He then showed some signs of pain, and vomited two or three times—the vomited matter consisted of mucus mixed with the antidote. During the first three hours, after the appearance of the symptoms, he was somewhat stupid, but at the expiration of that time he appeared about as well as usual.

Experiment 11th; weight 35 *lbs.*—Four grains administered, followed immediately by the antidote. The animal showed no symptoms for upwards of an hour; he then became slightly uneasy, being inclined to move about. These symptoms, though slight, continued for an hour when he vomited twice; the vomiting was attended with but slight effort and was not repeated. Symptoms abated, and the animal appeared to have recovered perfectly in three hours after the arsenic was administered.

Experiment 12th; weight 20 *lbs.*—Four grains administered and followed immediately by the antidote. The animal showed no symptoms for more than an hour; he then appeared to be suffering some pain. One hour and a half after the administration of the poison he vomited; the vomited matter consisted of the antidote mixed with a small amount of mucus. The vomiting was not repeated. This animal recovered speedily, partaking of food in three hours after the poison had beer administered.

Experiment 13th; weight 40 *lbs.*—Five grains administered. The antidote was not administered until ten minutes after the arsenic. The animal showed marked symptoms of pain in twenty minutes, then vomited a considerable amount of a thick glairy mu-

cus mixed with the antidote; made several attempts to vomit afterward, and appeared somewhat dull and stupid for about six hours. The symptoms gradually diminished and he recovered in about eight hours.

Experiment 14*th; weight* 18 *lbs.*—Six grains administered, followed immediately by the antidote; symptoms of poisoning appeared in ten minutes, vomited in fifteen, and appeared to suffer some pain for about six hours, during which time he made a number of attempts to vomit. This animal showed none of the symptoms of depression or stupor that marked some of the other cases. The animal recovered in about eight or nine hours.

Experiment 15*th; weight* 15 *lbs.*—Six grains administered and followed in about five minutes by the antidote. The animal vomited almost immediately after the antidote was administered. The vomited matters consisted of a large amount of greased paper, which the animal had eaten; with this was mixed the entire amount of antidote administered, as was shown by the subsequent vomiting. The antidote was not repeated. The symptoms gradually increased in severity, and the animal died in about six hours from the time the arsenic was administered.

In all the following experiments the strength of the arsenious acid solution was in the proportion of twelve grains in one fluid ounce of water.

Experiment 16*th; weight* 25 *lbs.*—Six grains administered. Symptoms of poisoning came on in eight minutes; the antidote was then administered. The animal vomited in about five minutes after the administration of the antidote, and appeared to suffer some pain. The vomiting was repeated several times, after which the symptoms of pain gradually subsided and the animal recovered.

Experiment 17*th; weight* 15 *lbs.*—Six grains administered, followed immediately by the antidote. Vomiting commenced in about ten minutes, and was repeated two or three times; after this the animal showed no signs of distress.

Experiment 18*th; weight* 18 *lbs.*—Six grains of arsenious acid in solution were mixed with about fifteen times its weight of the hydrated sesquioxide of iron and allowed to stand twenty minutes. The mixture was then administered. The closest observation failed to detect any symptom whatever as an effect of the mixture.

Experiment 19*th; weight* 15 *lbs.*—Seven grains administered, followed immediately by the antidote. Symptoms appeared in

about eight minutes, vomiting in fifteen minutes. The vomiting was repeated three or four times, after which the animal soon recovered, not having showed much signs of suffering.

Experiment 20th; weight 25 lbs.—Seven grains administered. The animal exhibited some signs of pain in about five minutes. A large amount of the antidote was then administered; this was followed by vomiting, which was repeated several times, each vomiting showing the presence of the antidote. The animal appeared a little stupid but showed no signs of pain, and recovered in about five hours.

Experiment 21st; weight 20 lbs.—Eight grains administered, followed immediately by the antidote. Symptoms of pain and uneasiness came on in eight minutes, followed by vomiting, which continued about an hour and then ceased. After this the animal showed some signs of pain but recovered in about seven hours.

Experiment 22d; weight 30 lbs.—Eight grains administered. Symptoms came on in five minutes; the antidote was administered in three minutes after the first appearance of the symptoms; vomiting came on in less than two minutes after the administration of the antidote. The vomiting continued with an apparent increase of all the other symptoms. The antidote was repeated; after which the animal vomited twice or three times. The symptoms gradually diminished, and the animal recovered.

As a deduction from the above experiments it is obvious, when the cases in which no antidote was given, are compared with those in which it was administered, that the hydrated sesquioxide of iron is an antidote for arsenious acid when administered in solution.

COLUMBUS, O.

Diphtheria. By H. CULBERTSON, M.D.

The nature of this disease is yet a mooted point. Some have considered it allied to scarlatina, and for this opinion there are some reasons, viz.: its appearance during the prevalence of scarlatina; the supervention from it of those sequelæ which so often attend scarlatina, or dropsy, and that desquamative nephrites so well known as a result of the latter affection: and again, in it the appearance occasionally of an eruption on the surface somewhat resembling that of scarlatina. But it must be remembered that,

during the epidemic, the number of cases of scarlatina is limited as compared to that of diphtheria, and also that the supervention of the former on the latter is almost certain to end in death; the system being able to bear one, but not both, thus hinting at their dissimilarity. And again, the well known fact that diphtheria may supervene upon scarlatina, points to a difference in their nature, and to the conclusion that if specifically the same, the attack of one should give immunity from the other; on the contrary, we know it to be true that the first following the last is extremely fatal. Again, scarlatina does not attack the air passages, as does diphtheria.

Others regard this disease, perhaps with good reason, as an erysipelas. This conclusion would seem to be borne out by the fact that we have cases of erysipelas prevailing generally, simultaneously with those of diphtheria, and we have observed the former in the same room with the latter.

Again, it resembles erysipelas in its rapid spreading tendency; in its migrating character (which we have seen in two cases;) in erysipelas frequently attacking the mucus membrane; in its early assuming the asthenic type; in the production of false membranes which resemble those found on the peritoneum in erysipelatous peritonitis, and upon open wounds, from the accession of erysipelas; in the wide-spreading suppuration and absence of a pyogenic membrane.

It thus seems that there are more reasons for believing diphtheria to be allied to erysipelas than to scarlatina; still the question is far from being settled, and may never be.

That this disease is produced by a morbid cause diffused through the atmosphere, is the opinion of most writers. This principle, be it what it may, seems to us to be infectious rather than contagious. The prevalence of this morbific agent modifies more or less prevailing diseases of the air passages. Thus are seen numerous cases of croup in children 10 and 15 years of age; pneumonia and bronchitis from slight causes, which hang to the patient with uncommon tenacity.

The symptoms of this complaint are too well known to need mentioning; but the diagnosis cannot be too closely considered.

The distinguishing mark of diphtheria has always been claimed to be the *white patches* upon the mucus membrane of the throat, the deposit beginning above and traveling downward; whilst the membrane of croup appears below and pursues an upward course.

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Though this statement is generally true, we are convinced there are cases of diphtheria showing no false membrane, as there are cases of croup without membrane. To illustrate: during an epidemic of diphtheria a child takes cold, and apparently has for a week common catarrh; suddenly, in a few hours, acute symptoms supervene, false membrane appears, not only in the upper part of the throat, but upon the epiglottis, and between this structure and the tongue, and yet there is no croup. Such cases have occurred in my own practice, as well as in that of others. It may be urged that this is a case of common catarrh, degenerating into diphtheria; but it would seem more reasonable that it is undeveloped diphtheria, since the epidemic is prevailing around, even in the same house, showing itself by the true patches. Why, therefore, should catarrh cease to be catarrh, and immediately become diphtheria? It is as safe doctrine to regard such catarrh as diphtheritic, as to consider tracheitis croup before the formation of false membrane, and safer to treat it as diphtheritic catarrh. What, then, is the difference between common catarrh and diphtheritic catarrh? So far as we are able to discriminate, the common runs its course in a few days, without much profound disturbance of the mucus membrane. The powers of life are adequate to overcome the disease; but in the diphtheritic the attack hangs on a week or two, locating in the upper air passages, these remaining, showing in slight cough, apparently in the trachea, in hoarseness and coryza. On observation, the throat and epiglottis are red, and there is some general debility. In such condition may the patient remain for a time; nature is on the alert, but she cannot remove the disease. Possibly you may have given an emetic, expectorants, pediluvia, &c.; yet the disease is still on your patient, and either runs a mild course, or the powers of life giving away, or the cause concentrating, it proceeds to a fatal issue. We do not wish to be understood as saying that diphtheria always begins thus gradually; on the contrary, it generally attacks rapidly.

What are these patches or false membranes? Writers inform us they are exudations of fibrin, having a low grade of organization. If examined, they are found of various grades, from a mere amber colored film to an expansion the sixteenth of an inch in thickness. Their color varies from snow white to yellowish white, while here and there may be seen a few red points. More closely viewed with the microscope, we have been enabled to distinguish broken

down blood globules, epithelium, pus globules, granules, and a low form of bond membrane, but no fibrillation. In proportion as the disease is aggravated, i. e., as it approaches the phlegmonous variety, the softer is the structure and the more globules does it contain. Without further considering the diagnosis, and deeming it unnecessary to mention the exciting causes, we pass on to notice the forms of the disease. Of these, the most simple is the—

1st. Catarrhal, mentioned above.

2d. The membranous; in which the substance of the mucus membrane is attacked and the tonsils may be enlarged. This presents a tendency to spread into the trachea, but is not so liable to extend into the cellular structure of the throat and neck, as in the—

3d. Phlegmonous form; in which the general cellular tissue of the throat and neck is the main seat of the disease, the mucus membrane of the throat suffering in common.

4th. The metastatic form, which re-localization we have observed in different parts of the body.

In the first of these forms there may be scarce any swelling of the mucous membrane; but it is red, as well as that of the tongue and epiglottis. In the second, the tonsils may be swollen somewhat, and the lymphatic glands but little enlarged, and deglutition and respiration scarce affected; or this may pass into the third form. In the third form, swelling of the cellular structures and glands of the throat and neck is great from the first; respiration and deglutition are early impeded, the tendency evidently being to death by strangulation. It is this form that is so fatal, as to sweep off whole families; seeming at times as though nothing could be done to arrest its progress.

These seem to be the great forms of the disease, which presents different terminations, or rather effects, viz: 1st. Resolution. 2d. Expectoration of blood or pus, mixed with mucus. 3d. Ulceration. 4th. Effusion of serum into the cellular tissue of the neck, or beneath the mucous membrane. 5th. Suppuration from mucus surface, or into the cellular membrane of the neck. 6th. Mortification. 7th. Collapse.

The most common of these terminations are resolution, expectoration, ulceration, effusion of serum and collapse; general suppuration and mortification not being so often seen, the disease generally ending before these are reached. Any of the former may end in collapse, either in the first stages, from the overwhelming of the

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nervous system by the potency of the morbific poison of the disease, or after any of the other endings, from failure of the powers of life.

The catarrhal form may end in resolution, but the membranous and phlegmonous rarely do. This form may also end in expectoration of blood, mucus and pus mixed; or it may pass into the membranous stage, which may terminate in expectoration, ulceration, serous effusion, and probably diffused suppuration, or rarely mortification. This form is especially liable to pass along the membrane into the larynx, and produce death by acute œdema; it also frequently ends in ulceration, which may be superficial or deep, or, extending, may destroy the velum or tonsils and adjacent structures, and then interfere with articulation and deglutition. If this pass into the phlegmonous form, then death will take place, not only from prostration and closing of the glottis within, but also from pressure around the larnyx, and upon the large blood-vessels of the neck.

If this form is arrested, the serum is gradually absorbed, and the case may recover without destruction of the tissues of the throat and neck, or the process may end in the throat generally, excepting at one point, giving rise to suppuration. This result, however, is not common unless the attack supervene upon scarlatina. The metastatic form, according to our observation, comes generally from the membranous variety; at least such was the origin in two of our cases. In both there was diphtheria in the same house, and both were first attacked with the sore throat, which subsided when the other parts became affected. Both cases were inveterate, and ran a specific course in spite of treatment. In one, the heart and structures of the scapula were the seat of disease, and in the other, one knee-joint only.

Prognosis.—This varies according to the strength of the patient, the intensity of the epidemic, and the stage when seen; and it is more dangerous in proportion as the disease approaches the phlegmonous form. If ulceration supervene we have always regarded this as favorable, as it inclines us to believe the disease will not spread. Early prostration is a very unfavorable symptom, and bids us husband all the powers of life. Previous disease which debilitates should dictate a guarded prognosis. If the throat should escape without much lesion, and pneumonia supervene, we cannot much expect recovery. The catarrhal form should be watched

closely, or, when we least expect it, the case may develop the membranous variety; in which result we always expect a bad termination. The reason for this is, that as the mucous membrane of the air-passages is more or less diseased, the morbid action most generally passes downward into the lungs.

In the treatment of this disease our object has been (if collapse is not present) to make a decided impression upon the arterial system, which shall shorten the sthenic stage, and arrest its progress at once, so that we shall the sooner be able to administer alteratives and tonics. But how is this to be accomplished? Not by bleeding, for we dare not resort to this powerful means least we induce prostration. We cannot procure an immediate blood stasis with veratrum, as too much time is required to bring the patient safely under its influence, during which period the disease may pass beyond the curative stage. Neither can we obtain our object with purgatives, these requiring too much time. What then will produce this immediate effect? We believe that emetics will. They, as is well known, relax the entire system, reducing the force of the heart's action, promote diaphoresis, evacuate the stomach—often the bowels—and directly and indirectly promote most of the secretions. Nor do they give rise to debility as much as many suppose; on the contrary, patients often feel stronger after their action. After emesis, excessive arterial action must be prevented; and veratrum seems to us to be the best remedy for this object. We wait two or three hours after the stomach has become settled before commencing its use.

1st. *Treatment of Catarrhal form.*—If there is high arterial action, an emetic of ipecac. or syrup scill. comp., is given, this being aided by warm bath, and followed by expectorants, if the attack does not end in resolution. It is generally found that the mucous lining of the trachea is more or less affected at this stage. If the pulse is still hard, veratrum in small doses will be advantageous. If the case does not yield, potassa chloras is given conjointly with expectorants, and still later, mild vegetable tonics, as gentian, &c., may be called for. But if there is depression, which is not common in this form, excitants are proper, as mustard sinapisms, hot bath, and, if necessary, a few doses of stimulants; then, when there is sthenicity, an emetic of ipecac., the action of which is closely watched and depression prevented. The supporting measures will be earlier required than in the preceding case.

The local treatment is mild astringent washes, always applied with a soft sponge probang, care being taken that there are no particles of lime in the sponge and that the end of the handle does not project through the sponge, thus avoiding any lesion of the surface of the membrane, which result would only tend to deepen the inflammation. In this form we have never found it necessary to apply solution of argent nitras, no matter how weak, believing that the disease could not thus be jugulated, and that the application would stimulate the affection, increasing the swelling, &c., and destroy the epithelial layer of the mucus membrane. In this form stimulating applications to the outside of the neck do good.

2d. *Treatment of the membranous form.*—This requires to be still more energetic and prompt; but as debility sooner appears, care is necessary that sedatives do not too much depress. Here the indication is to cut short the active stage that we may the earlier invigorate. If there is depression, which is not uncommon in this form, first stimulate mildly, and follow with an emetic of ipecac, but no antimony; and if the pulse remains hard, quick and frequent, veratrum, in small doses, is given and carefully watched, and the moment the pulse is reduced, and there is no fever, cease giving it. Chlorate potassa is then given in full doses, and if this produce no fever, the Tr. Ferri Murias is added in small doses, repeated every 3 or 4 hours: still later quinine or some of the vegetable tonics will be needed. Stimulants will be called for if there is a tendency to collapse, otherwise they may be given too soon. We are aware that stimulants sometimes contract the capillaries and thus force the blood onward relieving the blood-stasis, but we do not think they do this here; but, on the contrary, believe they increase the engorgement and extend the disease.

If this form extend into the air passages we may have œdema, or the case progressing pneumonia may supervene, or a thick false membrane be deposited in the trachea. In the latter case we have used as recommended by Prof. Horace Green, of New York, probanging with solution of argent. nitras, which contracting the membrane allows more air to enter, and often brings away the membrane on the sponge, or subsequently it is thrown off in coughing. For the œdema, in this or any other form, we apply leaches over the larynx, or cup and scarify the back of the neck, and if patient can bear it an emetic. We doubt the propriety, in this disease, of scarifying the mucus membrane for this complication, or of performing tracheotomy or laryngotomy.

The local treatment should be used with care else it will increase instead of lessen the disease. Argent nitras, in substance, should be applied firmly, only to the patches, scraping off these with the end of the stick, so that the morbid surface may be altered, and coated with the oxide of silver. The influence of this will be felt throughout the whole throat, and the mucus membrane preserved in the main. This is applied rarely oftener than once daily, remembering that we cannot burn out this disease. This is followed with astringent washes and mucilages, and small lumps of ice. Different washes may be used, as the vinegar and salt and alum, sulph zinc and Aqua Camphora, or Plumbi Acetas and the camphor water, or saturated solution of Alum and Soda Biboras, with Mel. and Tr. Myrrh added, or the following every 4 or 5 hours:

℞ Cupri Acetas gr. x.
Mel f. ʒi.
Tr. Myrrh f. ʒss.
Acid Sulph. gtt. v.
Aqua Dist. f. ʒij.

S M. sol.

We have recently been applying the following every 4 hours, but do not like its action as well as that of the vinegar, salt and alum mixed:

℞ Glycerine f. ʒij.
Liq Ferri sulphas f. ʒii, iij.
Mel f. ʒi.

S M.

To the outside of the throat the following ungt. spread thickly on muslin is applied day and night:

℞ Pulv. Camphora ʒss.
Axungua ʒi.
Ungt. Plumbi Acetas ʒi.

S M. et. ft. Ungt.

Hot fomentations are prohibited in this form, thinking they increase swelling.

If ulceration should present the solid argent. nitras is applied to the ulcers. We have also employed for this result the Liq. Hydrarg. Pernitras, diluted one-half, with good results, although it is more painful than the silver, still it seems to have a more decided effect.

3d. *Treatment of the Phlegmonous form.*—Here there is great tendency to collapse, and supporting measures will be required sooner than in the preceding variety. Emetics must be resorted to with extreme caution. However if the fever is active and the pulse hard, ipecac in full doses is given, sometimes adding mustard to prevent prostration. This course is followed with warm bath and diaphoretics, occasionally using small doses of Pulv. Doveri, Chlorate Potassa, Iron and tonics are exhibited almost from the onset of this form. Very soon stimulants will be required, not too freely, but as the nervous system seems to need support. Good food is here needed, as broths, &c.

If the throat can be reached the local measures recommended in the membranous variety are employed, as well as the Camphor and Lead Ungt. outside the throat, avoiding the warm fomentations.

If diffused suppuration is the termination, a small opening will be safer than a large one, as the wound itself may become larger, and its whole internal surface assume the diphtheritic character.

If mortification *is limited* stimulation may bring the patient through, this being an uncommon success. For collapse from any form stimulants, of course, are the remedies both internal and external. In such cases, when the patient could not swallow, we have kept the system up for some time by stimulating and nutritive injection, but only to see the throat swell larger and follow the course of the malady a little longer.

4th. *Treatment of Metastatic form.*—This calls for treatment according to the new seat of the disease, and its character. As there was in my cases much pain, anodynes were required. In one case mercury was used with advantage; in the other Pot. Iodide did good service. In both tonics Chlorine and Iron were used, under which variety of means both recovered.

It will be seen that we do not rely on purgatives in any of these forms, but we generally open the bowels with a laxative in the commencement of the attack, and after this seldom find it necessary to trouble the patient with physic.

The Tr. Ferri Murias seems to us to act in this disease as it does in Erysipelas, as an alterative as well as a tonic.

We have thought that the Chlorate Potassa is useful in this disease, not only because of the chlorine it contains, but more on account of the large proportion of oxygen in its composition, which acts as an invigorant.

The application of ice to the throat, in a bladder, we have thought of for some time, and a few days since tried it in the case of an adult, but she could not bear the pain it occasioned, and it was soon removed. It may be that we can use it in other cases, but at present we doubt the propriety of the attempt, especially in children.

Thus far our treatment has been intended for children; but the same indications prevail in prescribing for the adult. Of course in them we need not so much fear debility; we can push the sedatives further, and do more with the complications; neither is the complaint so fatal with the older ones; and in such we can avail ourselves of the opiate treatment, which cannot be pushed in children with safety. To illustrate: we are now attending a case of diphtheria, the subject of which was vomited and then placed on veratrum, with good effect; but the disease again began to progress, perhaps because the veratrum was not well borne. We then gave, as there was a great amount of local and general pain, a large Dovers Powder and ¼ gr. of Morph. Sulph. This promoted Diaphoresis, soothed the nervous and arterial systems, arrested the disease, and gave nature the ascendancy.

ZANESVILLE, O.

Thirty-two Years Utero-Gestation.

DR. HAMILTON—*Dear Sir:* In compliance with a verbal request I will state a few *facts* in regard to the case of Mrs. R——, to whom you were once called for the purpose of examination, and, if thought expedient, to operate for a pelvic tumor.

This patient came into my hands in May, 1860; and I will give you as much of her history as I have been able to get from her and her friends. She was of German descent, and at this time sixty-two years old; tall, and very much emaciated. Temperament—nervo-bilious. Had evidently once possessed an iron constitution. She had been married twice, and had one child by her first husband. At the age of thirty, while living with her second husband, in an attempt to walk in the dark, she accidentally fell, striking the lower part of her abdomen transversely on a stick of hewn timber.

In consequence of this fall a severe inflammation intervened in

that part of the abdomen. A young physician was called, who, after attending several months, discovered quickening, and pronounced her enciente. Illness continued; and at the supposed full term of utero-gestation she frequently had severe labor pains, and would send for her physician and other attendants, but to no purpose. Lactation was established at the period when it was supposed utero-gestation should have been completed.

At this time it was thought advisable to change her physician, and, to use the patient's own words, "called an old Doctor," who pronounced the case one of dropsy of the womb, and commenced treatment accordingly. At this time there was a constant and copious discharge per vagina, resembling beef brine, with an exceedingly offensive odor. The abdomen began gradually to diminish in size, and the treatment for dropsy was continued for about one year.

After the illness had continued about two years, her general health began gradually to improve. The secretive functions of the uterus soon became re-established, and continued in a healthy condition until she was forty-eight years of age, when menstruation ceased altogether. She continued to enjoy comfortable health, with a few exceptions, till the age of sixty. At this time her suffering became great, and almost constant. During twenty months (or about that time, not positive) of this her last illness, she passed through the hands of several reputable physicians, none of whom had succeeded in diagnosing her case.

On my first visit I found her complaining of constant nausea, frequent vomiting, anorexia, constant wakefulness, and an unceasing desire to urinate; at every attempt of which she was compelled to inflate her lungs and hold her breath, as if in the last throes of labor. Her screams and lamentations were so heart-rending that they were too much even for a physician to endure. She would beg to have something given that would relieve her sufferings, or put an end to her existence. Pulse 80, with some irregularity; tongue, clean; abdomen somewhat enlarged, with a hard, uneven surface, but too tender to admit of a satisfactory examination; could not endure an examination per vagina; prolapsus ani would follow every effort to urinate; a small amount of fœcal matter, with blood and mucus, was passed.

At this stage she showed me some little curiosities which she said passed with her urine, which I immediately recognized as

small bones and spicula of fœtal bones. Treatment consisted of such medicines as would relieve pain most *effectually;* for, by experience, it was ascertained that all others were of no avail. As the case progressed, she gradually sunk, and in September last died—one of the most heart-rending objects of pity I ever saw. Thus closes this sad picture of female suffering.

A post mortem examination, in which Drs. Welch, Longwell, Morrison, and Cherry, of this place participated, revealed the fact that the womb contained a large portion of the bones of a fœtus. The soft parts of the child had nearly all passed away by decomposition; some through the os tincæ while it remained open, and some by absorption.

There were extensive adhesions of the uterus to the lower portion of the small intestines. Latterly, it was adhered to the pelvis; anteriorly, to the bladder, through the walls of which there was an opening, caused by ulceration, about five-eighths of an inch in diameter, through which the small bones were passing into the bladder, The os tincæ being closed, the womb and the bladder became common receptacles for urine, fœtal bones and calculi. Judging from the time of quickening, the patient could only have been pregnant a short time when the accident occurred.

Thus it will be seen that Mrs. K—— carried her burden about thirty-two years. Two years in the commencement and two years in the conclusion were attended with great, even *extreme* suffering.

J. H. WHITE.

DELAWARE, *February* 15, 1861.

Necrosis. A report of five cases with operations occurring in Prof. Hamilton's Clinic at Starling Medical College. Reported by P. A. WILLIS, M.D.

Case 1. A colored man, D., aged 22, from Pleasant Valley, Union county, Ohio, was subjected to operation in November last. Six years previously had received an injury on left humerus, which resulted in acute ostitis and death of the bone. There had been more or less discharge ever since, and impaired usefulness, amounting at times to entire loss of the use of that limb.

When presented at the clinic, his health was very much impaired. The humerus was greatly enlarged, and there were three

openings; one about two inches above the elbow-joint, on the anterior aspect; one about the junction of the upper with the middle third; and the third on the posterior aspect, nearly midway between the others. The case was diagnosed as central necrosis. Prof. Hamilton commenced the operation by making a free incision, on anterior aspect, some eight inches in length, exposing the bone freely. The sequestrum was found deeply imbedded in the center of the expanded original bone, which was nearly three-fourths of an inch in thickness, and almost as hard as ivory. This bone was cut through with a small trephine, and the interspaces removed by splitting out with chisels. In this manner the sequestrum was exposed, and found to be five inches in length, of rough, irregular shape, and sufficient to account for all the trouble. The operation was protracted and difficult, owing to the hardness of the bone; almost defying any means brought to bear for its removal. Notwithstanding the extent and severity of the operation, the wound healed kindly, and the patient is at the present time entirely well.

Case 2. Mr. McC., of South Charleston, Clark county, aged 20 years, of naturally robust constitution and good health, was subjected to operation January 22d. Six years previously had been bitten on the leg by a dog, which caused acute ostitis of the tibia, and from this resulted central necrosis.

A good share of the time since he received the injury, he had been obliged to use crutches. When presented at the clinic, the tibia was found very much enlarged and thickened, and several sinuses opened on the surface at different points on the anterior aspect.

The operation proceeded as follows:—A free incision, eight inches in length, was made over the anterior aspect of the tibia, and the flesh dissected back on each side, exposing a large surface of bone, which entirely covered the sequestra. A mortise was then made with trephine and chisels through this bone six inches long, three-fourths of an inch broad, and fully an inch in depth. This shell of bone was exceedingly hard; almost baffling the utmost endeavors to remove it. At the bottom of the mortise were found several small sequestra, and one of some size; but none of as large size as in the first case, although the effects had been much more serious.

The operation lasted an hour and twenty minutes, owing to the difficulty which attended the removal of the shell of bone which

enclosed the sequestra. The patient returned home in three days, with every prospect of a permanent cure, as a result of the operation.

Case 3. Mr. J., of Ironton, O., sixteen years previously had sub-acute ostitis of the lower portion of left femur, and following this suppuration and the opening of three sinuses, two on the inner side of the leg, two and a half inches apart, and the third on the outside. There has been continual discharge from these openings ever since, draining the patient's system, and rendering him unfit for active life. The limb, in this region, was enlarged, and there was some stiffness in the knee joint. An incision was made, connecting the two sinuses on the inner side, and with great care carried down through the deep tissues which were found much condensed. An external sequestrum was found covered in by a shell of substitute bone, which was removed with some difficulty. The sequestrum was three inches long, half an inch wide, and of rough, irregular shape. Extreme caution was required in cutting, in order to avoid dividing the large vessels and nerves which lay in close proximity to the line of the incision, and which were so glued down in the condensed tissues as to make it impossible to avoid them by the ordinary anatomical guides. The external sinus was, also, enlarged, and a small sequestrum removed which lay on the outside of the femur. This had evidently been carried to its position through a sinus which extended from the larger sequestrum beneath the bone to the outside of the limb, as no disease could be found in the bone corresponding to its new position. The patient returned to his home two days after the operation, with a fair prospect of recovery.

Case 4. George A., of Franklin county, aged 15; operation made February 12. Sixteen months previously was attacked with pain and swelling above right knee joint, and extending some distance up the thigh. These symptoms continued more or less severe for about a year, and finally resulted in suppuration and an external opening three inches above the joint in the external aspect of the thigh. There had been continuous discharge from this opening ever since, and, as a consequence, a gradual decline in the patient's health.

A few weeks previous to the operation, Prof. Hamilton directed the sinus should be enlarged with plugs of dried elm bark, hoping that the sequestrum would escape through it; and a small piece did

escape, but the discharge continued, showing that the cause of irritation was still there. The probe, also, gave evidence of a large sequestrum, which could be removed only by an operation. A free incision was made through the external parts, revealing a large external sequestrum, which was easily removed, not being surrounded, as in the other cases, by peripheral or substitute bone.

The tissues surrounding the necrosed bone were very much condensed, and there would in all probability have been a shell of living bone deposited around it, had the operation been long delayed.

This is the great advantage occurring from an early operation.

The piece of dead bone was three inches in length, of considerable breadth, and very irregular and rough.

Case 5. Byron B., of Dublin, Franklin county, aged 13 years; operation performed February 16. In September last he fell from a tree, striking on his right hand, producing, as it was thought at the time, a trifling injury.

Two days after he was attacked with severe pain and swelling in the fore-arm, which soon extended to the arm and body. This acute stage lasted several weeks, and resulted in suppuration and the opening of several sinuses on the radial side. The inflammation and swelling finally subsided, leaving three sinuses; one on the palmar aspect and two on dorsal aspect of the limb. From these sinuses pus had continued to discharge, and two small pieces of dead bone had also escaped through one of them.

When presented at the clinic on February 15th, the radius appeared much enlarged; there was a sinus at the junction of the epiphysis with the diaphysis, into which a probe passed almost the whole diameter of the limb, encountering dead bone the whole course, showing entire separation of the head of the bone.

Another sinus appeared at about the junction of the middle with the upper third, in which the probe detected dead bone.

A free incision was made on the dorsal aspect connecting the two sinuses, and the external parts dissected back freely, exposing the shell of substitute bone. This was removed with trephine and chisel with but little difficulty, and several small sequestra removed.

The spongy part of the bone had been destroyed by caries. This was thoroughly exposed and scooped away. The epiphysis was found entirely separate and healthy, but the shaft was destroyed to a large extent. The boy is doing well, and has every prospect of recovering with a perfect limb, with the exception that, owing

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to the necessity of handling the extensor muscles pretty roughly, there will probably be impaired extension of the thumb.

The different conditions in which the parts were found in these cases, impresses the importance of early surgical interference, as soon as the inflammation and swelling have subsided and the dead bone is separated from the living. As long as the dead bone remains, it is a foreign body, and will produce more or less irritation, keeping up the discharge indefinitely. The irritation and discharge tend to weaken and depress the tone of the system, and in a majority of cases eventually greatly impair, if they do not destroy, the functions of the part implicated. The dead bone, by remaining, renders the process by which nature intends to repair the breach entirely futile; whereas, if it is removed at an early stage, she will do her work promptly and perfectly. In a large majority of cases, where an operation is performed early, the part will be restored to its original usefulness.

In the course of the late term of lectures, a very large number of these cases were presented. We report only the more striking ones.

Medical Topography of Atchison City, Kansas.

Lat. North, 39° 30′. Long. West, 94° 56′.

The town site of Atchison occupies a group of bluffs and a strip of table land dividing them. This latter has an average width of one quarter of a mile, and extends back from the river a distance of one mile, where it becomes a mere ravine. Clay Creek, a small stream fed by springs, flows through the south side of this interval, and empties into the Missouri River just below the center of the town. This flat or interval land may be regarded as the bottom land belonging to Clay Creek; but it is several feet above high water mark, and is never submerged. The country immediately around the city is high and bluffy, as is nearly the whole of Kansas bordering the Missouri. A few miles westward from the river the country gradually loses its broken character, but does not become level. Above and below the city the bluffs are covered with timber—principally oak, walnut and hickory—some of it of good size; west is a high rolling prairie, with here and there a small patch of scrubby timber.

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The hills or bluffs are composed of carboniferous limestone, covered with a rich soil varying in depth from one to six feet, which annually produces a luxuriant growth of herbaceous vegetation. There is no interval land between the bluffs and the river except the narrow strip mentioned. The city contains about thirty-five hundred inhabitants, who live principally in comfortable frame houses, built on the sides or summits of the hills; the business being confined to the low or flat land. On the east or Missouri side of the river, is a low bottom, varying in width from three to five miles, which is covered with a heavy growth of timber, principally cotton-wood. Swamps, lagoons and ponds are numerous; some, dignified with the name of *lake*, abound with fine fish, and from which our market is supplied. A number of farms have been opened on the higher portions of this bottom; the land when cultivated being highly productive. This bottom land has not been inundated since the great freshet in 1844, except in the lowest places, where no attempt has been made to cultivate it.

Immediately opposite Atchison, the land is somewhat more elevated, and entirely of an alluvial character. Here the town of Winthrop has been laid off; about fifty acres cleared; and here some forty families reside, principally of laborers who are employed in saw-mills in the neighborhood, of which there are several in operation. The town, on the north, east, and south, is walled in with a heavy growth of timber.

The physiology of the population of Atchison presents as great variety as one can well imagine in a town of its numbers. The first settlers were principally from Missouri and South Carolina, but now there is a predominance of Eastern people; but nearly every State of the Union has numerous representatives here. Its foreign population is large, proportionally; mostly Irish and Germans of the poorer classes.

Water.—The water of the Missouri River is always turbid, holding in suspension a large quantity of sand and earthy matter, but readily undergoing clarification, when allowed to stand in a vessel. I am not aware that it contains more organic or other matter in solution than the waters of other great rivers; although it is said to act as a laxitive upon persons unaccustomed to its use. The absurd idea that alcoholic liquors counteract its baleful effects (?) is almost universally prevalent among those who travel by steamboat, and sales of immense quantities of brandy, gin and

whisky may be placed to the credit of the error. When settled or clarified, the water of the Missouri is without taste—a good evidence of its purity. Our spring water—of which we have a superabundance—issues from cracks or fissures in the limestone rocks which everywhere crop from the hill-sides, and of course holds in solution some of the salts of lime. It is transparent, and to persons accustomed to its use, perfectly tasteless. The water found in the neighborhood of the sandstone formations, does not differ from it in its sensible qualities. No chemical analysis has been made of either, but as the beds of the latter rock are limited, we would expect but little change in the water passing through them. Cistern water is much used in the elevated parts of the city, because of the difficulty of digging wells through the solid rock lying but little below the surface. For the same reason some of the cisterns are quite shallow, and in summer the water is of too high a temperature to be palatable, and when it stands a long time without accession, the carbonic acid gas, with which it becomes impregnated, renders it positively disagreeable. I have seen nothing to warrant the opinion that any water used by the citizens, is generative of disease. During the past season—one which will be long remembered for its famishing drouth—the cisterns and many wells and springs were dry, and a majority of our citizens were compelled to draw water from Clay Creek or the river. Yet it has been a season remarkable for health.

Diseases.—Intermittent fevers on the Kansas side of the river are unfrequent and easily managed. In the twenty months I have practiced in this city I have not met nor heard of a single case of quartan ague. Autumnal fevers of a remittent form prevail, but not to any great extent. During the past season their tendency was to continue, but almost universally terminated well, unless too actively treated. I have found that patients generally do better without mercury than with it. Sometimes a calomel purge in the commencement of the treatment has a happy effect. Fevers at all seasons have a tendency to put on the asthenic character, but more especially in the spring.

Typhoid, or enteric fever, is occasionally met with, but usually in a mild form. It has never prevailed here as an epidemic.

Bowel affections were prevalent last summer, principally among children. There was seldom any miasmatic influence manifested

in connection with them, and their tendency was to recover without treatment.

Puerperal fevers are not unfrequent, but yield readily to quinine and opium, given early, and in large doses. Venesection has a pernicious effect, and, in their treatment, the lancet is very properly discarded by the judicious practitioner.

Rheumatic affections are common among the best livers. Purgatives, colchicum and opium generally effect a cure. Muriate of ammonia, in large doses, I have found to have a happy effect in acute rheumatism.

Scrofulous affections among children are rare, probably owing to the fact that the atmosphere, though cold, is very dry, which is not so depressing in its effects as humid air of the same temperature.

Skin diseases are not unfrequent; those arising from syphilitic poison, most common. A disease, popularly called "prairiac itch," is often met with. It is a vesicular affection resembling scabies, and amenable to the same treatment. It differs from the latter affection in attacking every part of the body indiscriminately. Erysipelas is met with, but seldom of a phlegmonous character. It is generally mild and easily managed. In the spring of 1858, scarlatina or rosalia prevailed as an epidemic. It was of a malignant type, and quite fatal. But few cases have occurred since.

Diphtheria has not appeared here as an epidemic. I have seen only one well-marked case of it, which was contracted by a young married lady while on a visit to a neighborhood in Missouri where the disease was prevailing epidemically. The tonsils and anterior palate were covered with deciduous membrane. A strong solution of arg. nit. was applied, watery inhalations used, and a mild purgative administered. On the third day the membrane was wholly detached, and the patient soon recovered. Two or three cases of well-marked membranous croup have come to my knowledge: they were fatal.

Pneumonia, bronchitis and catarrhal fevers are seldom of a high or inflammatory grade. In these the lancet is inadmissable. A persistent course of mercury does injury. I rely principally upon purgatives, antimony and opium for their cure. Quinine and stimulants are almost universally called into requisition at some period of the treatment. Sinapisms and epispastics are material adjuvants.

Pulmonary consumption is rarely met with. The active life and habits of our population do not favor its development, more than

does our bracing and invigorating climate. On the other hand, a residence here has been known to arrest its development when in its incipiency. A trip across the plains, from the Missouri to the Pike's Peak country, has had the same effect. The labor of travel, hard beds, rough fare, and out-door exposure, have given to many a pale, emaciated consumptive, brawny arms and ruddy cheeks; while the same course has hastened the death of others, who had been too long a prey to the ravages of the disease.

Recoveries from injuries and operations are rapid; owing in part to the salubrity of our climate, and in part to the fact that the subjects are seldom persons of vitiated habits and broken down constitutions. The same causes are of equal force in recoveries from diseases which are medicable The proportional mortality of a given number of serious injuries, operations, or diseases, is comparatively small, allowing a reasonable degree of skill to be displayed in their treatment.

On the opposite side of the river, in the Missouri bottom, intermittent and remittent fevers are very prevalent, and are often of a malignant type. Almost all the diseases there are of miasmatic origin, or are more or less influenced by malaria, and require the anti-periodic for their cure.

American and Foreign Intelligence.

Lectures on the Diagnosis and Treatment of the principal forms of Paralysis of the Lower Extremities. By Dr. C. E. Brown-Sequard. (Lancet, from August 31st to November 10th, 1860.)

The principal object of these admirable lectures is to point out the characteristic features of that paralysis of the lower limbs which is due to an excitation proceeding to the spinal cord from a sensitive nerve, and which is known as *reflex paraplegia*, and to show that this form of the disease requires a plan of treatment which differs very materially from that which is required in paraplegia deriving its origin from primary mischief in the cord itself.

The absence of the special symptoms of an organic disease of the spine or its contents, and the existence of an incomplete paralysis of the lower limbs that has appeared somewhat slowly after a disease of the urinary or genital organs, or of some other abdominal viscus, after an inflammation of the lungs or pleuræ, or after

some kind of irritation of a nerve in its trunk or in its cutaneous ramifications, are the general characteristics of *reflex paraplegia.* Most commonly the centripetal irritation of the afferent nerve, which is the *origo* mali, may be traced from the bladder or genital organs; but the cases given show very clearly that it may proceed from very different parts—from, in fact, any organ or any part. Dr. Brown-Séquard considers it possible, if not probable, that the centripetal irritation in the nerve produces a reflex contraction in the blood-vessels of the spinal cord, and that the paralysis is brought about by the failure of nutrition in the cord which follows this condition of the vessels. He believes, indeed, that there is an anæmic condition in the part of the cord concerned—a condition which is the very opposite of that which obtains in the case where congestion of the cord and its membranes, or inflammation of the spinal meninges, or inflammation of the cord itself, is the cause of the paraplegic symptoms. In 144 cases of paraplegic, 42 were cases of myelitis, 33 of white softening, 25 of *reflex paraplegia,* 12 of congestion, 9 of tumor, or pressure upon the cord, 7 of spinal meningitis, 7 of hæmorrhage, 5 of hæmorrhage followed by myelitis, and 4 of hysterical paraplegia; hence reflex paraplegia is a sufficiently common form of the disease. It appears, also, from these statistics, that, with the exception of the last-named form, men are much more frequently paralyzed in their lower limbs than women.

In order to have a clear idea of the characteristics of the different forms of paraplegia, it would be well to follow Dr. Brown-Séquard, step by step, in his masterly account of each form; but it must serve our purpose (our space admitting no other course) to take the shorter plan of considering each of the most important symptoms, and showing to what form of paralysis it is especially attached, and what is its cause—a comparison which is done for us by the author himself, and which cannot be improved or abridged.

"1st. *Cramps, twitchings, and other convulsions.*—The signification of tonic or clonic convulsions in paralyzed muscles, in cases of paraplegia, is quite evident; they are incontestible results of an irritation of either the anterior roots of the spinal nerves, the spinal cord, or the sensitive nerves in any part of their length, through a reflex action. In cases of myelitis it is chiefly under the form of cramps that convulsions occur; the frequency of these spasms is one of the characteristics of this affection. In cases of tumors pressing upon the spinal cord, especially upon its posterior surface, cramps are not so frequent as twitchings, or a general spasm producing a drawing up of the lower limbs, which sometimes remains permanently in a state of spasmodic flexion. In cases of chronic meningitis, or congestion of the spinal cord or its membranes, twitchings are more frequent than cramps. In cases of reflex paraplegia, the external irritation that produces the paralysis sometimes produces also spasmodic movements by a reflex action. Especially in those cases where the rectum or the urethra are the parts from which starts the irritation, there is what the patient

calls a *catchiness* or a drawing up of the legs. In cases of hæmorrhage in the spinal canal, tetanic convulsions are frequently observed. Rigid spasms of the muscles of the back are amongst the most prominent symptoms of spinal meningitis. Amongst the affections of the spinal cord that produce paraplegia, one of the most frequent—the non-inflammatory or white softening—is characterized by a total absence of cramps, twitchings, or other convulsions.

"On the whole, some form of morbid muscular contractions exists constantly in myelitis or spinal meningitis, and frequently in cases of congestion of the spinal cord or its membranes, or of tumors or other cause of pressure upon the spinal cord, and also sometimes, (by a reflex action,) in cases of reflex paraplegia. On the other hand, a complete absence of morbid contractions will be observed in all cases of non-inflammatory softening, and in the majority of cases of reflex paraplegia,

"2d. *Referred sensations in the paralyzed limbs.*—These morbid sensations, like morbid contractions, are the results of some kind of irritation, and the vital properties of the spinal cord changing when it is inflamed, these sensations may be produced by an inflammation of the gray matter. The various kinds of conductors passing through or along the gray matter being then irritated, give origin to all kinds of sensations which are *referred* to the various parts of the lower limbs. Sensations of cold or of heat, of touch, (formication, tickling, pressure, tightness, &c.,) of pain, (pins and needles,) and also sensations arising from muscles, and giving the idea that the limbs are in a different position from that in which they really are; in fact, all the sensations that pressure or some other cause of irritation may produce, when applied to the ulnar or the sciatic nerves, are often observed. In myelitis, some of these sensations always exist; in meningitis, or where there is simply a congestion of the spinal membranes, most of them are also observed, but less intense than in myelitis. In cases of irritation of the posterior roots of nerves by a tumor or a displaced bone, &c., referred sensations exist also. In such cases of irritation by a tumor, &c., and also in cases of congestion or meningitis, there is a feature which distinguishes these affections from myelitis; it is that in this last affection there may be a reference of sensations to all parts of the body that receive their nerves from the part of the spinal cord which is below the upper limit of the inflammation, while in the three other affections the sensations are referred only to those parts of the body which receive their nerves from the part of the spinal cord at the level of the seat of the irritation. The non-inflammatory softening, hæmorrhage, or a tumor in the gray matter, (as long as they do not produce inflammation,) and also the reflex paraplegia, are characterized by the absence of referred sensation.

"3d. *Feeling of tightness round the body, or round the lower limbs.*—This sensation, which is so frequent in myelitis, exists also sometimes in cases of tumors, of congestion of the spinal cord, and in meningitis. It is absent in cases of non-inflammatory softening

and in reflex paraplegia.* From this last fact it results that the tightness across the chest or the abdomen, at the level of the upper limit of the paralysis, does not depend, as has been said, upon the efforts made in moving the paralyzed parts by the non-paralyzed muscles just above them. Another objection to this explanation is, that the same feeling which exists around the body exists also, sometimes, around the lower limbs, in myelitis. This most probable mode of the production of this strange feeling is, that it is due to some irritation of sensitive nerve fibres in the spinal canal producing a sensation referred to the periphery of the body (abdomen, chest or limbs).

4th. *Alterations in the nutrition of paralyzed parts.*—These alterations chiefly depend upon an irritation of the spinal cord or its nerves. It is principally in myelitis that they are observed. A rapid wasting of the paralyzed muscles, the production of bullæ or sloughs over the sacrum, the nates, &c., are the most frequent results of an irritation of the vaso-motor, or of the other nerves that have an influence upon the nutrition of the lower half of the body. These alterations are not observed in cases of reflex paraplegia, or of non-inflammatory softening of the spinal cord; neither do they exist in cases of hæmorrhage, or of a tumor in the gray matter, unless the inflammation is produced.

"5th. *Erection of the penis.*—This is another symptom showing an irritation of the spinal cord or its nerves. It exists frequently at night, and sometimes in the daytime, in cases of myelitis or congestion of the spinal meninges. It is also observed, but less frequently, in cases of meningitis, of tumor upon the spinal cord, of hæmorrhage in the spinal canal (outside of the cord), and sometimes even in the reflex paraplegia, but then only on the introduction of a catheter or in consequence of some peripheric irritation. This symptom does not exist in cases of non-inflammatory softening, or of hæmorrhage, or a tumor in the gray matter of the spinal cord.

"6th. *Temperature of the paralyzed lower limbs.*—In those affections in which there is an irritation of the spinal cord or its membranes (congestion, myelitis, meningitis, pressure on the cord by effused blood, tumor, or a displaced bone, &c.,) the lower limbs, and especially the feet, are almost constantly very cold. This symptom is the consequence of the irritation of the vaso-motor nerves, which produces a contraction of the muscular fibres of blood-vessels, just as the irritation of the nerves of the muscles of the legs, feet, &c., produces cramps, twitchings, &c. In the reflex paraplegia the feet are also sometimes very cold, in consequence of a reflex contraction of their blood-vessels. In cases of non-inflam-

"* I need not say that this symptom, as well as many others depending upon a degree of irritation of the spinal cord or its nerves, will be observed in cases of reflex paraplegia, or of non-inflammatory softening of the spinal cord, if in those cases there is some degree of congestion in the membranes or in the cord above the softened part, or that which causes the reflex paralysis."

matory softening of the lumbar enlargement of the spinal cord, with a complete destruction of the vital properties of this part, the lower limbs are almost constantly very warm, as a result of the paralysis of the vaso-motor nerves.

"7th. *Degree and extent of paralysis of the lower limbs, the bladder, and the rectum.*—Of course great differences exist as regards the degree and extent of the paralysis, according to the degree and extent of the alterations in the spinal cord. We do not intend entering into any details on this subject. We wish only to say here that—1st. As regards the *mode of appearance of the paraplegia*, if it be sudden it is almost always due to hæmorrhage either in the cord or outside of it; 2d. As regards *the degree of the paralysis*, it is equal in all the muscles of the lower limbs, if the alteration occupies the whole of the lumbar enlargement, or is above it, except in cases of reflex paraplegia, where some muscles may be much more affected than others; 3d. As regards *the changes in the degree and extent of the paralysis*, they are rapid and frequent in cases of reflex paraplegia, of chronic meningitis with effusion, and of spinal congestion, while, on the contrary, they are slow and rare in cases of myelitis, tumors, and non inflammatory softening; 4th. As regards *the paralysis of the bladder and of the rectum*, they exist more frequently in cases of myelitis, of non-inflammatory softening, or of hæmorrhaga in the gray matter, than in the reflex paraplegia, or in cases of tumor, of congestion or even of meningitis.

"8th. *Anæsthesia and Hyperæsthesia.*—Myelitis existing most frequently in the gray matter, anæsthesia (the different kinds of it, with the loss of the power of guiding the voluntary movements) is one of the ordinary symptoms of this affection. This symptom is less frequent or less intense in most other cases of paraplegia, except, of course, a hæmorrhage in the gray matter. As regards hyperæsthesia—*i. e.*, a morbidly increased insensibility—it is frequent in cases of incomplete paraplegia, when the posterior columns of the spinal cord, in a small part of their length, are destroyed, either by a tumor, or by a softening (inflammatory or not).

"9th. *Reflex power.*—In all cases of paraplegia, in which the lumbar enlargement of the spinal cord remains uninjured, the reflex power of that enlargement increases notably. On the contrary, the revere is observed in cases of alteration of this enlargement."

In a therapeutical point of view the principal object of these lectures is to point out the cases of paraplegia in which strychnia or belladonna, or ergot of rye, are to be employed or avoided. According to the author, the various forms of the disease may be classed into two general groups: one in which the amount of blood circulating in the spinal cord is too considerable, and where mercury, ergot, and belladonna are required, because these remedies are supposed to have the power of diminishing the quantity of blood in the spinal cord; another, when the opposite condition of vascularity obtains, and where strychnia is called for, because strychnia is supposed to have the power of increasing the vascularity of the cord.

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The treatment of *reflex paraplegia* is divided into—1st. The means to be employed against the external cause of the affection; and 2d. The treatment of the paralysis itself. Dr. Brown-Séquard proceeds:

"As regards the first part, we will say nothing here, as we can not enter into the details of the treatment of nephritis, cystitis, pneumonia, enteritis, and other morbid states that may cause a reflex paraplegia. As regards the direct treatment of this affection, we will first lay down the general rules of the treatment, and then we will enter into the most important details concerning this treatment.

"1. When it has been ascertained from what organ or from what nerve starts the nervous influence which causes a reflex paraplegia, besides the treatment that is appropriated to the nature of the local affection (of that organ or nerve,) it is of the greatest importance to try to prevent or to diminish the transmission of any nervous influence from the diseased nerve or organ to the spinal cord. All the means usually employed to alleviate pain will be of service in such cases. If possible, we must try to paralyze for a time the sensitive nerves that convey the morbid influence to the spinal cord. Even a momentary suspension or diminution of the transmission of this influence may be very useful. Narcotics ought to be employed in injections,—in the bladder, if that organ be the place from which starts that morbid influence; in the vagina, if the uterus be the place; and in the rectum, if the large intestine be the place. Narcotics ought to be taken by the mouth, if the stomach, the small intestine, or the kidneys are affected. In case of a pneumonia producing a reflex paralysis, inhalations of chloroform (which, by the way, have been successfully employed against the inflammation itself,) may prove useful. We will say, by-and-by, what narcotics should be preferred.

"2. The object of the means just proposed is to diminish the cause of the paraplegia; the object of the means we will now speak of is just the same, although it may seem to be quite different. Excitants or revulsives applied to the skin of the legs have been warmly recommended by Graves, who has obtained good results from their use. Probably the mode of action of these means consists in producing for a short time the same effect as the irritation which is the cause of the paralysis—*i. e.*, a contraction of the blood-vessels of the spinal cord; but, according to a well-established law, if such a contraction becomes considerable, the muscular fibres are soon exhausted, and a relaxation of the contracted fibres takes place, and, as a consequence of this relaxation, a dilatation of the blood-vessels occurs. Of all the causes of irritation capable of producing a contraction of blood-vessels by a reflex action, none has more power than cold. In consequence of the fact, I think some of the modes of application of cold to the spine ought to be employed in cases of reflex parplegia. But the excitation in those cases must be very powerful, and able to produce a very considerable degree of contraction, so that the consequent exhaustion

and dilatation may be obtained. With the same view, we may employ a very powerful excitation of the skin along the spine, by interrupted currents.

"3. Another important principle, or rather another part of the same general principle of treatment, consists in making use of the following means to increase the quantity of blood in the spinal cord: Every night, and often in the course of the day, the patient should lie down on his back, placing his head, his arms, and his legs on high pillows, so as to produce by gravitation a congestion in the spinal cord. This simple means, which is also applicable in cases of hysterical paraplegia and in almost all cases in which there is an insufficient amount of blood in the spinal cord, is just the reverse of what should be done in cases of inflammation or congestion of the spinal cord or its membranes, or of disease of the spine, &c., in which cases the patient ought to lie flat on the abdomen or on one side of the body, and have his feet and hands on a much lower level than that of the spine.

"4. As regards the remedies to be taken by patients attacked with a reflex paraplegia, they must essentially be those which increase the amount of blood in the spinal cord, and augment the vital properties of this nervous centre, and also those remedies which render the blood richer in nutritive principles. We will soon indicate which are the best of these various remedies.

"5. As regards food and the hygienic rules, patients attacked with a reflex paraplegia must have the most substantial aliments, so as to improve the deficient nutrition of the spinal cord. They must take a great deal of exercise in the open air, and especially make use, as much as possible, of the paralyzed muscles."

Entering into detail, and speaking of the means for diminishing the external irritation, our author says:

"No narcotic is more powerful than belladonna locally employed to diminish pain or to prevent a reflex action. Unfortunately, for reasons that will be fully developed in the next lecture, it would be very unwise to make a constant use of belladonna in cases of reflex paraplegia. In cases of disease of the urethra or the prostate, an injection of a solution of one grain of the extract of belladonna, in twenty drops of laudanum, is to be made into the urethra, and the injection should be retained half an hour, or even an hour, after which some emollient decoction should be employed to wash away the rest of the narcotics. Every two or three days the same operation should be repeated. In the intervening days, I advise the use of an injection of thirty drops of laudanum, without belladonna. In cases of a disease of the bladder, I recommend the use of an injection into the bladder of a solution of one grain of the extract of belladonna, in twenty drops of laudanum, just after a complete emission of urine. One day this injection is employed, and the next day twenty-five or thirty drops of laudanum alone are injected. When the prostate is very much enlarged, a suppository, covered with a belladonna and opium ointment, ought to be put, at times, in the rectum.

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"When the irritation that causes a reflex paraplegia starts from the vagina or the uterus, a pill of half a grain of extract of belladonna with one grain of extract of opium, surrounded by a piece of cotton wool, is introduced far into the vagina, and even up to the neck of the uterus. By means of a thread attached to the cotton, it is withdrawn as soon as the pain has ceased or much diminished. This simple means I have seen often employed with benefit by my learned teacher, Professor Trousseau, in painful affections of the womb, and I have myself made use of it with great advantage in two cases of reflex paraplegia and in several cases of hysterical paralysis.

"In cases of a reflex paraplegia due to dysentery, colities, or other morbid irritations of the large intestine, accompanied by diarrhœa, opium alone—*i. e.*, without belladonna—should be employed in enemata. In cases of paraplegia due to teething, if it co-exists with enteritis, as it often does, opium is the narcotic to be employed, and it should then be taken by the mouth in very small but repeated doses. In cases of neuralgia producing a paraplegia, the narcotic that should be chiefly employed to relieve pain is opium, and so also in cases of paraplegia due to a disease of the stomach, the liver, the kidneys, the pleuræ; but even in all these cases, belladonna may be used with profit if united with opium, if it is not often employed, and especially if strychnine is also used at the same time. I could not insist enough upon the importance of the necessity of never using belladonna without employing at the same time strychnine and opium, or at least strychnine, in cases of reflex paraplegia. I must repeat also that in this affection, when belladonna is employed, its use ought not to be a constant one; and, if the patients are not very costive, opium ought always to be the principal narcotic used to alleviate the external irritation that causes the paralysis."

The means for increasing the nutrition of the spinal cord are classed in two groups—the medicinal and the physical. In the first group, sulphur, particularly in the form of baths containing sulphuret of potassa, is mentioned as a means which may do good. But strychnine is put forth as the remedy *par excellence*. "It is generally believed," says Dr. Brown-Séquard, "that strychnine acts on the spinal cord as an excitant—*i. e.*, in the same way as the application of galvanism, of heat, of a caustic, or a mechanical irritation. This is a great error; strychnine is not able to produce the least excitation on the spinal cord. The experiments of Van Deen, of Dr. Marshall Hall, those I made ten years ago, alone, or with my pupil, Dr. Bonnefin, and those recently published by M. Martin-Magron and M. Buisson, in their most important paper, 'On the Comparative Action of Woorara and Strychnine,' cannot leave the least doubt on this point. It is only in increasing the reflex faculty of the spinal cord that strychnine seems to cause convulsions. This vital property of the cord reaches such a very high degree, that any external or internal excitation brings on a reflex tetanic contraction, the violence of which, according to a well-

known law, is in proportion to the degree of the reflex faculty. So long as the spinal cord does not receive some kind of excitation, however powerfully poisoned by strychnine it may be, there is no convulsion. I have seen frogs, deprived of respiratory and voluntary movements (after the extirpation of the brain and the medulla oblongata,) remaining hours, days, and even a week, without the least convulsion so long as they were not touched, although they were poisoned by a large dose of strychnine; but the least touch produced in them the most powerful reflex tetanic spasms.

"How does strychnine act to produce this augmentation in the vital property of the spinal cord? In two distinct ways—1st, in increasing the amount of blood in the spinal cord; 2dly, in acting in a special and direct manner on the tissue of the cord. As regards the first mode of action, we shall only state here that it is a positive fact that the quantity of blood circulating in the spinal cord is very much increased, and that consequently its nutrition is also increased. As regards the second mode of action, the admirable researches of MM. Martin-Magron and Buisson have established beyond doubt that even when the spinal cord does not contain any blood, strychnine directly applied upon, or in that organ, increases so much of its vital property that reflex tetanic spasms may be produced.

"These two modes of action of strychnine explain how this alkaloid acts in cases of reflex paraplegia. The amount of blood in the spinal cord, and the reflex faculty of this organ, are very much diminished in this affection. Therefore, strychnine must have a great curative power in such a malady, and it must be employed with persistence so long as the paraplegia lasts. The teachings of theory in this respect agree perfectly with those of practice, as there are a great many cases observed by others or by myself, which I might relate, to show the therapeutical power of strychnine in the reflex paraplegia.

"When used together with opium, the dose of strychnine must be a small one—*i. e.*, from one-fortieth to one-thirtieth of a grain a day. When used alone, its dose may be one-twentieth of a grain a day. When employed together with belladonna, the dose must be larger on account of the antagonistic action of belladonna on the spinal cord."

The chief mechanical means for improving the nutrition of the cord are the position which has been described,—the application of heat and cold alternately, either by means of two sponges, one soaked in very hot, and the other in very cold water, or by flapping with a towel, one end of which has been dipped in cold, and the other in very hot water,—and the powerful excitation of the skin along the spine by interrupted currents. Applications of croton oil, of mustard poultices, of blisters, &c., to the skin of the thigh or calf of the leg are said to be frequently beneficial in the treatment of paraplegia, but revulsives, issues, &c., applied on or near the spine, are condemned as useless.

Galvanism, shampooing, keeping the paralyzed parts warm, and

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attempts on the part of the patient to recall voluntary motion to these parts, are the chief means recommended for preventing the ill-effects of rest in the paralytic muscles and nerves.

— We have left ourselves little room for any reference to the treament of myelitis, of spinal meningitis, and of spinal congestion; but we must not omit to notice what is said about the use of belladonna and ergot of rye in these affections.

"Amongst the remedies to be employed internally, the most active," says Dr. Brown-Séquard, "are those which have the power of diminishing the congestion of the spinal cord. The two which seems most powerful in this respect are belladonna and ergot of rye. Experiments upon animals have shown to me, in the most positive manner, that these two remedies are powerful excitants of unstripped muscular fibres, in blood-vessels, in the uterus, in the bowels, in the iris, &c. Both of them dilate the pupil; both are employed with success to produce contractions of the uterus; but each of them has more power in certain parts than the other, so that we find belladonna acting more than ergot on the blood-vessels of the iris (which is the principal cause of the dilatation of the pupil)—on the blood-vessels of the breast (which is the principal cause of the cessation of the secretion of milk—on the muscular fibres of the bowels (which is the mode of its action in cases of strangled hernia) —on the sphincter of the bladder (which is one of the causes of its success against nocturnal incontinence of urine,) &c.; while, on the contrary, we find that ergot acts more than belladonna on the muscular fibres of the womb, on the blood-vessels of the spinal cord, &c. We cannot give here the proof, the exactitude of these assertions on the mode of action of these two remedies, but we must at least answer an objection which probably will arise in the mind of many persons. It will be asked—How is it that, of two remedies that are able to excite contractions in smooth muscular fibres, one produces them more in one place, and the other more in another place? The answer to this objection is indeed very simple. The excitability of smooth fibres, as well as that of striated muscles, varies exceedingly in different parts of the body. An exciting agent (whether galvanism, cold, heat, or belladonna and ergot of rye,) will produce powerful contraction in some places, and hardly any in other places. The smooth fibres of the uterus contract more than those of the bowels or bladder, and less than those of certain blood-vessels when stimulated by galvanism; the smooth fibres of certain blood-vessels contract more than those of the uterus under the excitation of cold; still more, the blood-vessels of the cerebral lobes and of the face, which contract so much when their nerve (the cervical sympathetic) is irritated, contract but very little when excited by belladonna and ergot, while these two excitants produce powerful contractions in the blood-vessels of the spinal cord.

"Not only have I seen the diminution in the calibre of blood-vessels of the pia mater of the spinal cord taking place in dogs after they had taken large doses of belladonna or ergot of rye, but I have also ascertained that the reflex power of the spinal cord

(most likely as a consequence of the contraction of blood-vessels) becomes very much diminished under the influence of these two remedies, which in so doing act just in the opposite way to that of strychnine.

"Led by the knowledge of the above facts, we have employed belladonna and ergot of rye in cases of paraplegia due to a simple congestion or a chronic inflammation of the spinal cord and its meninges, and we have obtained a greater success than we had dared to hope for. Whatever be the value of our experiments on animals as regards the mode of action of these remedies, it is now certain that they have really a great power in diminishing the amount of blood in the spinal cord and its membranes. It is very well known that many French physicians, especially Bretonneau, Payan, Barbier and Trousseau, have for many years employed with success belladonna and ergot of rye in cases of paraplegia. Of course we do not claim to have been the first to make use of these remedies in paraplegia, any more than we claim priority as regards employing strychnine in various forms of paralysis. But we claim to have pointed out, as clearly as we could, in what cases of paraplegia strychnine or belladonna and ergot of rye are to be employed or avoided. To indicate this distinction is the principal object of these lectures.

"In the beginning of the treatment of chronic myelitis, we usually employ ergot of rye alone internally, and belladonna externally in a plaster applied to the spine, over the painful spot. The dose of ergot, when the powder is used, which is almost always the case, is at first two or three grains twice a day; gradually the dose is increased until it reaches five or six grains twice a day; and in a few cases we have given eight grains twice a day. We do not think it necessary to make use of the very large doses employed by M. Payan. The belladonna plaster applied to the spine must be a very large one, four inches wide, and six or seven inches long. If there is no amelioration in a few weeks, we give the extract of belladonna internally in doses of a quarter of a grain twice a day.

"When we find that the patients, after six or eight weeks of treatment by ergot of rye and belladonna, do not get better, we give iodide of potassium in doses of five or six grains twice a day, in addition to the preceding remedies. When there is any reason to suspect that there is a degree of meningitis together with myelitis, we begin at once the treatment by the iodide of potassium with the ergot and belladonna."

A proper position in bed—on the side, perhaps on the abdomen, never on the back, the arms and legs kept warm by flannel bandages and other means, and allowed to hang lower than the trunk,—dry cupping to the spine,—hot douches followed by frictions—are recommended as likely to be of service; but strong revulsives to the spine are put out of court (except, perhaps, in cases of myelitis resulting from caries,) from the danger there is of their giving rise to troublesome sloughing.

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Where the paraplegia is due to white softening, iodide of potassium is regarded as the remedy most deserving of confidence.

— Such appear to be some of the principal points of interest in these admirable lectures. For want of space, however, we have been obliged to omit many points which are necessary to give a fair idea of the lectures as a connected whole, and we therefore recommend all who have the opportunity to supply what we have been obliged to omit, by reading the lectures for themselves from beginning to end.—*Ranking's Abstract.*

On the best preservative from Hydrophobia. By M. A. SAMSON. (Journ. of Pract. Med. and Surg., July, 1860.)

Struck with the inanity of the measures and means of all sorts proposed every year for diminishing the disastrous effects of rabies, Mr. Samson has thought that one means only exists of preserving us from this scourge—the knowledge of the exact cause of the insidious and little known phenomena of the beginning of this terrible affection. For this purpose it is indispensable to destroy certain errors prevalent among the public, and this is precisely the end Mr. Samson endeavors to attain.

And first, despite the word which designates it, rabies may exist for a certain time before any phenomenon of furor is manifest. In its earliest stage, the animal has no aversion to water, as he is supposed to have; he even often drinks with avidity. Now, what is his attitude? From the description of a learned English veterinary surgeon, Mr. Youatt, and from his personal observation, the author sketches with a masterly hand a graphic picture of the physiognomy and gait of a mad dog in the beginning of the disease. At this moment the animal retires to the kennel; *he shows no inclination to bite, and obeys,* although slowly, his master's voice. But his body is, as it were, contracted, and he hides his head between his chest and fore-feet. He then becomes restless, seeks a new place, returns to his litter, and moves about without being able to find a position that suits him; his appearance is gloomy and suspicious; he goes from one to another, as if to crave assistance, far from flying from his master's house. If he is of a mild and affectionate disposition, he remains caressing, perhaps more even than in health. In snarling and vicious animals only, the aspect becomes terrifying, and the eyes express ferocity.

An important phenomenon is again the depravity of the appetite; the animal eagerly seizing matters improper for nutritive purposes; also an intense thirst, which seems to proceed from inflammation of the fauces, and is often attributed to a mechanical cause, to a bone he may have swallowed, &c.

It is, however, at the last period only of the disease that the foaming at the mouth is seen, although this is popularly regarded

as an infallible sign of rabies. At an early stage, on the contrary, the mouth and throat are dry in consequence of the paralysis of the muscles of the pharynx, which succeeds the angina of rabies, the saliva, the deglutition of which is rendered impossible, mechanically flowing from the mouth.

But there is an unmistakable sign, which is never forgotten by those who have once heard it, it is the *howling of the rabid animal.* The voice of the mad dog undergoes a special modification, which conclusively points to the diagnosis. Nothing is more convincing than the following fact, related by Mr. Bouley:

"One Sunday, two pupils returning to the School (Veterinary) of Alfort, at nine o'clock in the evening, heard the howling peculiar to rabies, which proceeded from a watch-dog in a neighboring house. They hastened to apprise its master of the impending danger. Fortunately the dog was still chained up, and was not released that night. On the following morning he was taken to the school, and pronounced to be rabid, to the great astonishment of its owner, who could not believe that this animal, *still as docile, as caressing and obedient* as in health, was attacked with so terrible a disease. The presence of mind of these pupils doubtless prevented great misfortunes; had it not been for their interposition, this dog, which was of a large size, would have been let loose, perhaps have escaped, and might have occasioned many accidents in the surrounding country."

In this instance, the diagnosis reposed on the mere sound of the voice, and was accurate. Mr. Samson, then a pupil of the school, saw, some days after, the same dog die with all the symptoms of rabies.—*Ranking's Abstract.*

On Diphtheritic Paralysis. By Professor TROUSSEAU. (Gaz. des Hospitaux, Nos. 1–5, 1860; Med. Times and Gazette, July 28, 1860.)

The following are some of the observations made by M. Trousseau, during a clinical lecture delivered at the Hôtel-Dieu.

The subject of the lecture was a woman, who, having been recently confined, contracted diphtheria from a patient in a neighboring bed. Alum insufflations and applications of hydrochloric acid were resorted to, with the effect of removing all diphtheritic exudation. Already on the tenth day, however, she spoke markedly through the nose, and deglutition was very difficult, aud accompanied by nasal regurgitation. A notable proportion of albumen was also found in the urine, indicating the rapid degeneration of the local into a general affection. The paralytic lesion of the pharynx kept increasing, so that by the twenty-fifth or thirtieth day, the woman could no longer swallow, and was like to have died while

trying to take some solids. About the fortieth day some improvement in this respect took place, but now numbness of the hands and feet was observed, as well as defective pronunciation from imperfect movement of the tongue. By the fiftieth day, progression had become uncertain, and general nervous symptoms, chiefly consisting in delirium and convulsions, set in. The worst apprehensions were now entertained, but musk having been administered, some improvement took place. So considerable, however, was the paralysis, that the patient could not raise herself without the assistance of two nurses. The bladder was also affected during two or three days, but not so the rectum. With this paralytic condition, complete anæsthesia co-existed, the patient remaining absolutely insensible to pricking with needles. At the present time (150th day) the symptoms have so ameliorated under the use of syrup of sulphate of strychnia, that the patient can now get in and out of bed easily, can knit a little, and is able to distinguish between wool and cotton by the touch. No disturbance of visual powers has taken place, although during six weeks, enormous quantities of albumen have been found in the urine. One circumstance worthy of note, is the remarkable alternations which were observed—sometimes one limb and sometimes another, being affected to-day, and well to-morrow, to again become suddenly bad again, and so on; and as this is of common occurrence in diphtheritic paralysis, we may justly conclude that the lesion of the nervous centres is not of a very grave character.

Is diphtheritic paralysis a new disease? Those of my hearers who commenced their studies some years ago must have become struck with the sudden predominance of new pathological conditions. During the last thirty years, we have seen several of these so-called new diseases, such as Bell's disease, or facial paralysis; Bright's disease, or albuminuria; leucocythemia, or Virchow and Bennett's disease; endocarditis, or Bouilland's disease; affections of the supra-renal capsules, or Addison's disease, &c. Since the period when Calmeil published his admirable work on epilepsy, how common has this terrible neurosis become, while forty or fifty years ago it was comparatively a rare affection. Thirty years since the cholera was unknown in English and French India. The plague, still so common in certain regions, tends to completely disappear in others. Variola, pertussis, and scarlatina, which, at a very remote epoch, prevailed in great intensity, and later had almost disappeared, have been in their turns as new diseases. M. Broca, while *interne* to Blandin at the Hôtel-Dieu, never failed, when examining the bodies of those who died of purulent infection, to detect suppuration of the veins. He states, however, that at the present time he finds such phlebitis quite an exceptional occurrence. At the beginning of 1859, M. Delpech observed an epidemic of puerperal fever at the Maternité, in which suppurative fever was the marked characteristic, pus being deposited in the veins and as metastatic abscesses, while there was scarcely any pain in the hypogastrium. In another epidemic, at the end of the

year, on the contrary, it was puerperal peritonitis which carried off the patients. In medicine as well as in surgery, there are peculiar physiognomies of diseases; one revolution, the intimate essence of which escapes us, brings them on, another dissipates them, and a third re-establishes them.

As to diphtheritic paralysis, it is probable that it has never been so prevalent as within the last two or three years. M. Trousseau has performed the operation of tracheotomy successfully on sixty children (out of 250 operations), and in only two of this number have general phenomena analogous to those in question been observed. Diphtheria itself, indeed, has of late years taken on an altered physiognomy, for in place of invading the pharynx, and proceeding slowly towards the larynx, it now becomes generalized with a terrible facility, prostrating the patients, and delivering them up to the mercy of nervous accidents of the highest intensity. "I never witnessed such cases with Bretonneau, although my master subsequently signalized these manifestations of a novel malignity."

In answer to the question, whether a simple angina may not sometimes lead to a paralysis, M. Trousseau adduces some cases in which paralysis of the velum seems to have followed it; but when the paralysis has become more generalized, he suspects that it may be due to diphtheritic influence, although this may not have been accompanied by its usual local manifestations—just as is the case with instances of scarlatina accompanied by little or no eruption.

In 1771, Samuel Bard described a case of aphonia following diphtheria, and Bretonneau reporting this fact in 1826, stated that he then had met with nothing analogous to it; but in 1843, he witnessed the production of paralysis of the extremities following diphtheria, in the person of M. Herpin, a surgeon of Tours, who had contracted the disease in consequence of some of the false membranes from the throat of a patient, which he was syringing, gaining access to his nostrils. Since that time, M. Trousseau has paid much attention to this complication; but believing at first that the paralysis of the velum might be due to muscular inflammation, it was not until 1853 or 1854 that he definitely drew the attention of practitioners to the fact that the paralysis really depends upon a more general condition, and that it is, in fact, one of the effects of the poisoning of the entire economy by the diphtheria. M. Maingault has especially of late done much towards the elucidation of this disease, which has not only multiplied itself at the Children's and at St. Eugenie Hospitals, but has become so common in private practice; and perhaps there is not a single practitioner in Paris who has not seen one or more cases.

Although, in general, the very varied paralytic symptoms in diphtheria may cease, even without the intervention of medicine, at the end of two, three, four, or six months, there are other cases in which death may be the result, or the paraplegia may become more enduring. Examples of this are adduced by M. Trousseau

from his own practice. In some cases death has resulted from the mere difficulty in swallowing.

As to the nature of this paralysis, it is evident that it is not dependent upon a material lesion of the brain, as this would be inconsistent with the versatility of symptoms observed, and with its frequent curability. It is presumable that there is something analogous to what is observed in certain cachexias. In Bright's disease, paralytic phenomena are also observed, and the amaurosis in that affection has been well made out and described by M. Laudonzy and others. One very remarkable circumstance in diphtheritic paralysis is the temporary extinction of venereal desires, which occurs at a very early period, even in those possessed of considerable genital ardor. In various other serious pathological conditions, especially phthisis, the patients long preserve their copulalative aptitudes. M. Trousseau referred to other instances of paralysis, analogous to those now in question, occasionally observed after feeding on certain poisonous fish, after typhoid or variola, after asphyxia from charcoal vapors, and after the manipulation of sulphuret of carbon in the vulcanized caoutchouc factories (where also both men and women experience venereal frigidity).

In the treatment of paralysis consecutive to diptheria, while combating the local condition, we must especially endeavor to restore the patient's strength. Bark, in all its forms, iron (especially the syrup of the ammonical citrate or the perchloride), bitters, animalized and nutritious diet, exposure to the fresh air, dry frictions along the spine, aromatic and stimulant lotions, and sulphureous baths, comprise our most precious resources. Preparations of nux vomica, and especially the syrup of the sulphate of strychnia, act as general stimuli, arousing the muscular contractility, and may, on occasions, render good service. In spite of these and all other means, it must always be borne in mind that diphtheritic paralysis is an affection of considerable duration.

On the cure of the Deaf and Dumb by dropping sulphuric ether into the ear. By MM. BEHIER, TRIQUET, and others. (Journ. de Med. et de Chir. Pratiq., Aug., 1860.

Four or five years ago. Mdlle. Cléret, a private teacher living in a suburb of Paris, applied to the Minister of Public Instruction for assistance in carrying out a new mode of curing deaf and dumb persons. This mode was by dropping from four to eight drops of sulphuric ether into the ear every day. A committee was appointed to inquire, of which M. Behier was a member. Speaking of what he saw, this gentleman says, "We saw deaf and dumb children, perfect little savages before the treatment, become tractable and obedient as soon as the improvement of their deafness began to

make them amenable to direction. Ether is a purely empirical remedy. When is this agent useful? when is it not? These are questions which I cannot answer. All I know is, that the only unfortunate result I have seen from its use has been its failure in certain cases. It causes a little pain; it is sometimes badly borne; in these cases it is sufficient to employ it at longer intervals. Although I do not use the remedy in my own practice, I could cite four new cases of complete deafness cured by the instillation of ether since the publication of my report."

M. Fonssagrives has not as yet published the result of his experiments; but some other practitioners, in reply to the appeal of Dr. Debout, have published a certain number of cases, which are, on the whole, favorable to the remedy of Mdlle. Cléret.

Still, we persist in the belief that ether will not realize the exaggerated expectations which have been entertained regarding it. If it only relieve deafness by dissolving the cerumen which incrusts the membrana tympani, it can only act by relieving a morbid condition hitherto unknown, and which unfortunately, to judge from certain statistics furnished us by Dr. Triquet, aurist in Paris, is not the most common cause of deafness.

Up to the 18th of July, M. Triquet had treated by ether 110 patients (rich and poor) affected, some with chronic catarrh of the middle ear, others with nervous deafness—all *deaf*, be it well understood, and subject to ringing in the ears. In all these cases, care had been taken to test the power of hearing before and after the treatment. The result has been this: The patients have been treated with thirty to forty drops of ether every three, five, or seven days, rarely every day. There has always been immediate pain, without consecutive amelioration; far from it—the deafness and the ringing in the ears have augmented progressively with the number of instillations. In twenty cases the pain and redness of the auditory canal have been so violent as to have necessitated the employment of antiphlogistics. The patients (women) have suffered from headache, which has continued for weeks, and deprived them of sleep, although the treatment was suspended on the very day that the headache was experienced.

M. Triquet had thought, as the result of his first trial, that ether might be used without inconvenience to dissolve ceruminous concretions; but he is now forced to confess that, even in these cases, its uses may occasion accidents, such as otitis, with considerable swelling of the lining membrane of the auditory meatus.

On the whole, the instillation of ether in the case of 110 patients, made with all possible precaution, has not produced, according to Dr. Triquet, any perceptible amelioration, and in a considerable proportion has manifestly aggravated the condition of the patients. The author may, no doubt, be reproached with having unconsciously, in his character as specialist, deepened the shadows in the above picture; but even charging to the account of individual susceptibility the accidents attributed to ether, we must still see here a list of 110 failures out of 110 patients. This result, it must be

allowed, is not encouraging; and there is much reason to apprehend that M. Menière only expressed the truth in writing to M. Debout, that a belief in the efficacy of ether to cure deafness was one of those generous dreams which pass away with the morning light.—*Ranking's Abstract.*

On the therapeutical methods of preventing pitting of the face in Small-pox. By DR. STOKES. (Dublin Quar. Jour. of Med. Science, Feb., 1860.)

During the last four or five years, Dr. Stokes has employed gutta percha and collodion, in a considerable number of cases of confluent smallpox, for the purpose of preventing pitting of the face. In most of the cases the crust came off in large flakes or patches, composed of the dried exudations and the covering material, leaving the skin uninjured. This kind of treatment was most successful in cases of a typhoid character, but appeared to be not so well adapted to those presenting a more sthenic type. Dr. Stokes considers that the application of poultices over the face is the surest method of preventing disfigurement in smallpox. Their use should be commenced at the earliest period, and continued to an advanced stage of the disease. In most cases they may be applied even over the nose, so as to cover the nostrils. The plan should fulfill three important indications of treatment—namely, to exclude air, to moderate the local irritation, and to keep the parts in a permanently moist state, so as to prevent the drying and hardening of the scabs. The best poultice is formed of linseed meal, which should be spread on a soft material, such as French wadding, and covered with gutta percha paper or oiled silk. The conclusions to which Dr. Stokes arrives are the following: 1. That the chances of marking are much greater in the sthenic or inflammatory than in the asthenic or typhoid confluent smallpox. 2. That, considering the change in the character of disease observed during late years, we may explain the greater frequency of marking in former times. 3. That in the typhoid forms of the disease the treatment of the surface by an artificial covering, such as gutta percha or glycerine, will often prove satisfactory. 4. That in the more active or non-typhoid forms the use of constant poulticing, and of every other method which will lessen local inflammation, seems to be the best mode of preventing disfigurement of the face.

Cure of Cutaneous Diphtheria by Perchloride of Iron. (Gazette des Hopitaux, July, 1860.)

The following case is doubly interesting, both as an example of the effect of a mustard-plaster on the skin, under the influence of a

diphtheric epidemic, and as an example of the good effects of the internal and external use of perchloride of iron. A man, forty-two years of age, of a strong constitution, was seized, in November, 1859, with a subacute form of bronchitis, and as he became delirious in the course of the complaint, Dr. Noir, who was attending him, ordered mustard-plasters to the calves of the legs. The delirium ceased, but the mustard produced a vesication, which disturbed the patient all night. The next day Dr. Noir opened the vesicles without removing the epidermis, and a quantity of serum escaped, similar to that of blisters. There was great subsequent irritation, however, and Dr. Noir, investigating the cause of the patient's sufferings, discovered, instead of vesicles, two enormous diphtheritic patches, one on each calf; these patches were of a greyish-white color, irregular and dry, sufficiently hard to give a sound when struck by a spatula, both surrounded by an erysipelatous areolæ, tending to enlarge, and more painful than the patches themselves. There were at the time several cases of diphtheria among children in the neighborhood. Dr. Noir cauterized all the areolæ with nitrate of silver, in order to prevent the disease from spreading; and he also ordered a draught to be taken, containing twenty drops of tincture of perchloride of iron at frequent intervals. The diphtheritic patches and the inflamed skin surrounding them were washed with a solution of iron. By this treatment, the progress of the disease was arrested and the pain was relieved, and after a few days a decided improvement was manifest. The diphtheritic patches were gradually thrown off, and eventually two ulcers of a healthy appearance were left, which proceeded to cicatrization without any serious symptoms.—*Medico-Chirurg. Review.*

On the Use of Ergot of Rye in the treatment of Retention of Urine from Paralysis of the Bladder. By Dr. ALLIER. (Bulletin General de Therapeutique, Sept. 15th and 30th, 1860.)

The faculty possessed by ergot of rye of producing uterine contraction suggested to Dr. Allier the idea of employing this agent in the treatment of certain forms of paralysis of the bladder; and M. Paul Gaersant has subsequently demonstrated in his practice at the Bicetre, that the ergot is really endowed with the property of exciting contraction of the bladder. He employed it not only in cases of retention of urine from simple paralysis of the bladder, but also in order to promote the expulsion of the detritus of calculi after lithotrity. In order to ascertain the physiological effects of this substance, Dr. Allier took several times, fasting, one gramme divided into four doses; the results were a little heaviness of the head, and a slight feeling of intoxication similar to that produced by champagne. Sometimes there was a desire to make water more frequently than usual, almost always a kind of uneasiness in the pelvic organs, which prevented sleep; at other times, on the

following night there was a kind of involuntary jactitation and disturbed sleep, and the rhythm of the heart's pulsation was variable. Dr. Allier relates a number of cases treated by ergot of rye, and his general conclusions are as follows: In the first place, he finds that the innoxious character of the drug is fully established, although he administered it in large doses continued for a long time, and he is therefore induced to doubt the deleterious effects attributed to it by some writers, or rather he believes that there may be different kinds of ergot, some of which are poisonous and others not so. In four out of fourteen cases related, there was evident excitement of the generative organs, which could be attributed only to the use of the ergot, and nearly all the cases exhibited more or less alteration in the nervous system, the most constant effects being a kind of pleasing inebriation, itching of the skin, nausea, uneasiness in the lower limbs, slight convulsive movements, and especially excitement of the contractility of the bladder when this function had been weakened or lost. The ergot appears especially to have a kind of mysterious predilection for the bladder, of the same nature as that which is admitted to exist in the case of the uterus, and quite as inexplicable; it is, in fact, a special and transient excitor of the nervous system, appearing to act more particularly upon the lumbar portion of the spinal cord and the hypogastric plexus of the sympathetic, which themselves react upon certain orders of muscles, and especially on those of the bladder. Dr. Allier does not agree with M. Bonjean in classing ergot among the opiates; for, according to the former physician, ergot never produces stupefaction, such as is observed in advanced drunkenness, or in opium-smoking and opium-eating. The transient intoxication produced by ergot can only be compared to the effects of a glass of champagne. It may be admitted, however, that one of the principles of ergot—namely *ergotine*—may present some analogy with opium in its stupifying power. Dr. Allier draws the following conclusions from his researches: Ergot overcomes retention of urine when it has not yielded to catheterism, and abridges the duration of those cases which would yield in time to the catheter. It has no efficacy in the treatment of retention caused by enlargement of the prostate. Paralysis of the bladder, resulting from cerebral hæmorrhage, yields rather easily to ergot; but this is not the case with paralysis of the limbs following apoplexy. Ergot is equally efficacious in vesical paralysis connected with an undetermined lesion of the nervous centres, but has no power over paralysis of the limbs dependent on the same lesion.—*Medico-Chirurg. Review.*

On the Diagnosis of Dislocations of the Shoulder. By M. MAISONNEUVE. (Moniteur des Sciences Medicales, No. 122)

It very often happens. M. Maisonneuve observed in a recent clinical lecture, that even experienced surgeons may hesitate respecting the existence of a luxation of the shoulder; and you are

aware of the learned dissertations to which the differential diagnosis of these luxations, fractures of the neck of the humerus, and even simple contusion, has given rise to. Numerous are the pages, even in the most recent works, devoted to this important discussion; and certainly, after reading and meditating upon them, one can but be persuaded that this diagnosis is one of the most delicate and difficult in surgery. This does not arise from the enumeration of the characteristic symptoms of each lesion being incomplete. Far from it; for real and doubtful symptoms, vague and precise symptoms, are so accumulated that even the most skilfull can scarcely make them out, while the simple practitioner is utterly at a loss. Still there is a simple and easily-discovered symptom, which will always enable you to recognise with certainty not only this but any other dislocation, whatever swelling of the surrounding soft parts may exist. This symptom is based upon the fact that *in all dislocations the normal movements are impeded or abolished,* while in simple contusion these movements persist, and in fractures others of an unusual nature are added to them. Take hold of the arm, and endeavor to make it execute the movements proper to the articulation. If these are found to be impossible, or very limited, there is without doubt dislocation; while if these remain intact, no luxation exists, and the presence or absence of shortening and crepitation will determine whether the accident is a fracture or a mere contusion. This sign alone will enable the diagnosis of the dislocation to be made. The study of the symptoms may be carried farther, and analysed in detail. We may verify the flattening and the depressibility of the shoulder, the projection of the head of the humerus, the elongation of the limb, and the various circumstances which determine the variety of the dislocation. But the mere fact of the abolition of the movements of the joint had already placed the fact of the dislocation beyond all doubt.—*Medico-Chirurg. Review.*

A new method for the reduction of Strangulated Hernia. By Mr. WALTER JESSOP, Surgeon to the General Hospital and Dispensary, Cheltenham. (Lancet, Oct. 20, 1860.)

In May last, Mr. Jessop was called to a case of strangulated hernia (left oblique inguinal), in a man aged fifty-two years. The accident had occurred some thirty-six hours previously. The taxis, opium, chloroform, hot baths—in short, all the ordinary modes of treatment, had been perseveringly applied, without success.

At the time of his visit, he found his patient in a partial state of collapse, in a profuse cold perspiration, with great tension of the abdomen, and symptoms of hiccough and nausea coming on. The patient complained bitterly on his lightly attempting an examina-

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tion; indeed, the part seemed so exquisitely painful as at once to negative all hope of success from further direct efforts at reduction. An immediate operation was proposed, but firmly declined by the patient and his friends. Desiring them to seek further advice, Mr. Jessop left the room, but was immediately recalled, with a request that he would permit an hour's delay. Agreeing to this, and while waiting in the house, a thought struck him that it might occasionally be possible to relieve a patient under such circumstances without having recourse to the knife. On explaining this to the patient and his friends, they at once consented to a trial of the means proposed.

Calling a male attendant into the room, he directed his patient, still lying on his back, to the edge of the bed, and with assistance, separated his legs, placing one over each shoulder of the attendant, who, facing the bed, stooped to receive them; and, in this position, by passing his hands round the fore part of the thighs, was enabled to obtain a sufficient purchase to permit of his raising him on to his head and shoulders on the bed, thus throwing the intestines back upon the diaphragm, and to some extent necessarily making traction behind and directly *from* the seat of strangulation. After two or three minutes' manipulation of the abdominal parietes, he found the tumour become less tense, and drawing forwards the integuments round the point of rupture, he made lateral, upward and downward movements—jerking, as it were, occasionally, the parts immediately contiguous to the stricture. This seemed to excite but little suffering; in fact, the patient, so far from uttering complaint, declared himself, after the first two or three minutes, decidedly relieved—that "the dead sickening weight that killed his groin," as he termed it, was better. Continuing these efforts, and varying them as they seemed to occasion distress, he presently felt a slight gurgling under his hand, and almost immediately had the satisfaction of finding the hernia reduced, and his patient comparatively in a state of safety.

The whole proceeding did not occupy ten minutes. Slight peritoneal tenderness existed for some days, but the man eventually did well.

The *rationale* of the proposed plan is simple. A mass, large or small, of displaced intestine or omentum, must assuredly be more readily withdrawn from its point of incarceration or strangulation by traction from behind, than by the best-directed efforts of the taxis. Any one, for illustration, taking the trouble to put a fold or two of his handkerchief in a ring formed by his finger and thumb, and lightly strangulating it, will, on attempting to return it by pushing or kneading from before backwards, find infinitely greater difficulty in effecting his purpose than if he were to make traction from behind. In short, the employment of the taxis is at the best a clumsy and most uncertain mode of proceeding, and in future the author intends to make it merely supplementary to the plan he now advocates.

"One swallow fails to make a summer," and it may be said that the practice of turning patients *a posteriori* upwards is opposed to all orthodox notions of propriety. Admit all this. Others, with greater opportunities, may happily be enabled to add to this single case; and granting that the position of the patient may be accused of positive inelegance, it may, at any rate, contrast favorably with our proceedings in lithotomy, and in many other operations on the perineal region.—*Ranking's Abstract.*

On the nature and treatment of Prostatorrhœa. By Professor Gross, of Philadelphia.

Prostatorrhœa is defined to be a discharge from the prostate gland, generally of a thin mucous character, dependent upon irritation, if not actual inflammation, of the component tissues of that organ. It has generally been confounded with other lesions, as gleet, or chronic urethritis, seminal losses, and crystorrhœa, or chronic inflammation of the mucous membrane of the bladder. It does not often occur among children or old people, but is most common during the activity of the sexual organs, and is most frequently met with in those whose sexual propensities are the strongest. The exciting causes are not always evident, but the disease has generally been traceable, either directly or indirectly, to venereal excesses, chronic inflammation of the neck of the bladder, stricture of the urethra, or some affection of this canal; it may have its origin in diseases of the rectum, and the use of internal remedies, as cantharides, turpentine, may excite a temporary prostatorrhœa; a common cause in young men is masturbation. The *symptoms* are a discharge of mucus, generally perfectly clear, ropy, varying from a drachm upward in twenty-four hours; in efforts at defecation the flow is greatest. It is attended, also, with a pleasurable, tickling sensation sometimes. Prostatorrhœa may be distinguished from urethritis by the gradual supervention of symptoms, the transparency of the discharge, the absence of symptoms of inflammation of the urethra, &c.; from spermatorrhœa, by a microscopical examination of the discharge; from cystorrhœa by the absence of changes in the urine, or difficulty in micturition. The *pathology* of this affection consists in a disorder of the follicular apparatus, leading to an inordinate secretion of its peculiar fluid. This may be due to inflammation, but in some instances the organ appears to be entirely healthy, in which case it is supposed to be due to a heightened functional activity. The *prognosis* is generally favorable, as this affection is not a disease, but a symptom of disease, usually slight, and easily removed; it is often, however, very obstinate, and when the mind deeply sympathizes with the local affection is very difficult of management. The *treatment* should be directed to the removal of the cause, and to this end there should be a thorough explanation of the genito-urinary appa-

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ratus, the anus, and the rectum, and a careful inquiry as to the habits of the patient. If he is weak, gentle exercise, nutritious diet, wine and tonics are indicated. The tincture of the chloride of iron in union with tincture of nux vomica is especially recommended; if he is plethoric, the antimonial and saline mixture is useful; the most useful topical applications are cooling and anodyne injections, as Goulard's extract with wine of opium in the proportion of one or two drachms each in ten ounces of water, three times daily; in obstinate cases, cauterization once a week may be necessary; the cold hip-bath is also important, and if the symptoms do not yield, leeches should be applied around the anus and to the perinæum.—*North Amer. Med-Chirur. Review*, July, 1860.

The Dengue or Break-bone.—This fever prevailed the last season in Savannah and other Southern cities. It was not, however, in our opinion, as *severe or general* as it was some years past. It might be called an epidemic, perhaps, with propriety, but we are satisfied, from our own observation, that many cases of *intermittent* and *remittent* fevers were styled *break-bone*, because of an existing white tongue, and an unusual amount of pain in the limbs. Dengue is a fever of one paroxysm. The most of the cases treated by us, though accompanied with neuralgic pains, were distinctly remittent or intermittent, and late in the fall almost every case lasted from three to six days, a large majority unattended with an eruption. The cases of intermittent had same character of tongue, and pain in the limbs, with characteristic intermission, and chills followed by fever. This is never the case in Dengue. Hence we are forced to the conclusion that these cases were intermittent and remittent fevers, modified by the epidemic tendency to break-bone—not genuine cases of the latter. We must state that we searched diligently for the eruption in our hospital and private practice. The eruption was found in comparatively few cases. The latter is not a constant accompaniment of Dengue, we admit, but its absence in so many cases, is at least corroborative evidence that the fever was not as general as some might be inclined to believe. Wherever there exists an epidemic tendency, we are prone to class diseases accordingly. When epidemic cholera prevails, every diarrhœa is called cholera—when yellow fever, every fever is treated as such, &c. More discrimination is required if we desire to arrive at truth, and obtain reliable statistical data.

It is a notorious game quacks play, by stating to the public that they have so many cases of yellow fever, or cholera, of diphtheria, etc., and only lost so many, making the last incredibly small. This is a plan, scientific perhaps, (?) of misrepresenting their success. In one case every fever, however simple, is put down as yellow—in the other, every intestinal disorder is numbered among the cholera cases—and all apthous affections classed as diphtheria.

The public is deceived and reputation gained. We hope that regular practitioners will be guarded in this particular, and never sacrifice truth to individual interest. There is another peculiarity of fevers in Savannah this fall, but we do not now propose to enlarge upon, which is that as winter commenced and vicissitudes of temperature became greater, there was an evident tendency to *congestion*. This was manifest in all kinds of fever—Remittent, Intermittent, and Break-Bone.—*Sav. Journal of Medicine.*

A Case of Leucocythæmia. By Dr. GEORGE SHEABER, Resident Physician, Royal Infirmary, Edinburgh.

A young man aged twenty-four, a miller by trade, admitted to the infirmary under the care of Dr. Gairdner, affords an interesting illustration of leucocythæmia. Three weeks elapsed from his admission to the time of his death, and "the following is a summary of the facts of the case in regular sequence: Anæmi, languor and debility; epistaxis; headache; bleeding from the gums; renal pain, with lithiasis; febrile symptoms; disappearance of lithic acid, and appearance of lithates and albumen; diarrhœa; re-appearance of lithic acid; uncontrollable epistaxis; hæmatemesis; otitis; exhaustion and death."

The crystalline deposit in the urine, on third or fourth day after admission, consisted mainly of hexagonal crystals of the lithic acid, with a few of the ordinary rhomboidal crystals. These, we have already said, afterwards disappeared. Post mortem examination revealed leucocythæmia, enlarged spleen, fatty liver, petechiæ on the mucous membrane of stomach and on the serous surfaces of the pericardium and endocardium.

The case detailed by Dr. Sheaber gives him a field for reflection, which he discusses in the following suggestions:

1. Enlargement and activity of the spleen is not the only condition involving increase of the white corpuscles, there being at present a case in the infirmary in which this condition of the blood co-exists with enlargement of the whole limphatic system of glands, without detectable enlargement of the splenic organ.

2. The fact of a great excess of white corpuscles in the blood in cases of leucocythæmia being accompanied by constant diminution of the red discs, appears to militate against the theory put forward by Wharton Jones, and supported by Bennet and others, that the latter are derived from the former by liberation of their included neuclei; for, according to their theory, increased activity in the formation of the white ought, *pari passu*, to be attended by increased development of red discs, while the reverse is the case. Comparative increase of the white corpuscles is seen in a variety of organic diseases, especially chest affections; but it also occurs in dystentery, diarrhœa, paraplegia, etc.; in all of which one general condition was observed, viz: depreciation of the appetite, and

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emaciation. These facts, Dr. Sheaber thinks, point to the blood itself as the primary source of origin of the red discs, and in the diseases mentioned there is either a deficiency of nutritive pabulum taken into the blood for the production of the red corpuscles, or these are rapidly melted down to supply the elements of the discharge. In leucocythæmia, again, the nutritive pabulum is appropriated for the formation of the white corpuscles, the blood being thereby impoverished to the extent to which these are increased; development of the red discs is consequently kept in abeyance, and anæmia is again the result.

3. The deficiency of color in the urine and the salts obtained from it depends probably upon the same cause as the pallor of the general surface, viz: deficiency of red globules and hæmatin in the blood.

4. Careful study of the deposit of lithic acid seemed to warrant the inference that the common or lozenge-shaped crystals is derived from the perfect hexagonal form by shortening of the lateral planes of the latter; but this does not explain the formation of the true rhombic crystal, which is an irregular form.

5. Hemorrhage from various mucous surfaces form as prominent feature of this disease, and may depend partly upon the increased tension maintained in vessels by the absolute increase of volume in the mass of the blood, and partly upon the imperfect nutrition of the walls of the capillaries from the inferior quality of the blood for histogenetic purposes.

6. The white corpuscles, we know, are closely allied to fibrin in composition and character; fibrin is increased in febrile and inflammatory diseases, and accompanying this is an increased elimination of lithic acid, or lithates, by the kidneys. Can any relation exist between the lithuria present in this case, and the increase of white corpuscles in the blood?

Rabies as an Epizootic in Early Ages. By Dr. HUSEMAN.

Rabies has found, on more occasions than one, some special historians. Among these may be mentioned Krugelstien, on account of his "History of Rabies Canina and Hydrophobia," Gotha, 1826—an account of which deserves all approbation for the labor spent on it. All writers on rabies canina, however, take their notes of it from modern times—Krugelstein himself citing those only from the 18th century. And yet there were cases in earlier times, which came under the observation not only of contemporary medical men, but also of the chroniclers of those days.

Thus, in the first part of a familiar historical book—"Theatrum Europæum," by Joannes Phillipus Abelinus (or Gottfried), Frankfort, 1634,—we find the following in page 712:

"In addition to all the distress and war, and great famine, which extended over almost every place at this time, still another plague

appeared, from harvest to November, 1621, in Rhenithal, and the territory of Appenzoll and the surrounding country. For, during the previous summer, the bodies of many thus dying, having been thrown into the Rhine and then cast upon its shores, the dogs fed upon them; on which account they became mad, and afterwards attacked the cattle in every direction and destroyed them. The loss of the people in this way was estimated at 25,000 gulden. At last they were obliged to turn out with spears, rifles and poles, and destroy every animal thus affected.

"At this period, the trees, as in spring, both in these and in other places, blossomed, and the birds laid their eggs and hatched forth their young.

"In Siebenburgen the dogs also run mad, and not only bit cattle, but even men, causing them to go mad; so that they were obliged, with great labor and grief, to put such infected men and cattle, along with the dogs, out of the way, to prevent still further misfortune and peril, which could not otherwise be avoided."

It is worthy of remark, that Siebenburgen was specially affected; since, according to Beecher's Statistics of the Austrian Empire, it still suffers, most of all the provinces of the Empire, with rabies. That, in the year 1621, men affected with rabies "were put out of the way to prevent still further misfortune and peril," is perfectly credible, when we think of the manners of the age and the country.

The erroneous idea, that rabies canina arose from devouring dead bodies, was extensively believed in the 17th and 18th centuries, and even finds an expression in the laws of the time. Thus, in the "Laws of the Principality of Lippe," vol. iii, 10, the following circular may be found relating to the interment of dead cattle:

"As it is reported that the required interment of dead cattle has been neglected in some parts of the country, and in others it is not made deep enough, so that the dogs can dig the carrion out of the earth, eat it, and become mad; the authorities will take care to have a more strict compliance with the edict of May 4, 1779, and bring those violating it to punishment."

That, by the consumption of carrion, a true epizootic might be produced in dogs, which should have a great resemblance to contagious rabies, later investigations have shown.

In the other volumes of the European chronicles of Abelinus (the work is in 16 volumes) which Dr. Huseman has examined, he finds no record, except that of this epizootic among the dogs, in the 17th century. But the misdeeds of wolves, that had gone mad, are recorded in various years. Thus, in 1651, it is stated that in Cologne, on March 31st, a wolf, having lately gone mad at Ververs, destroyed twelve men before he could be slain. In his throat there was found a large piece of fresh human flesh, which might have been from a soldier of Lothingia, as these were lying unburied in quantities in that region. In the woods or forests, between the Italian States of Pisa and Luca, six large, fierce wolves were seen together, which had become so famished that they not only attacked sheep and other flocks, but also their shepherds and

herdsmen, destroying twenty of the latter. Hence the Grand Duke of Florence despatched his upper master of the chase, with all his dogs, and 400 soldiers, to exterminate these wolves, but they were not to be found.

Similar wolf stories are related of Bohemia, Erfurt, and Touraine, in the years 1652, 1653 and 1671, which cannot here be discussed, since they possess no special interest, and the proofs alleged merely illustrate the characteristics of the style employed in the "Theatrum Europæum."

John Wakefield Francis, M. D.

(Died February 8th, 1861—Aged 72 years.)

A great and good man has passed away from our midst. One of the last representatives of a glorious race of physicians has gone to his resting-place: John Wakefield Francis is dead; a cloud of mourning is cast over his city, at the loss of him who was one of her noblest sons and citizens; and the profession throughout the country feels deeply that it has lost one of its brightest stars. The loss is felt the deeper, because it came unexpectedly. Though far advanced in years, Dr. Francis was one of those few men whom we never can look upon as old—whose very winter of life seems but a return of the spring time of youth.

The personal, professional, and public history of Dr. Francis is so well known to most, that we need not enter into a lengthy biographical dissertation; a short sketch will suffice.

He was born in New York, in the year 1789. His father, Melchoir Francis, was a native of Nüremburg, Bavaria, who had come hither shortly after the establishment of American Independence.

Young Francis at first chose the calling of a printer, like Franklin, whom he personally much resembled. But his inquiring mind led him onward to higher aims. He entered Columbia College, where he graduated in 1809, and received his A.M. in 1812. On leaving college, he entered into the office of Dr. Hosack; and in 1811, received his degree of M. D. from the College of Physicians and Surgeons. His inaugural thesis on the *Use of Mercury*, attracted much attention, and was translated into German. Very soon after his graduation, Dr. Hosack urged him to unite with him in practice, and this union continued until 1820.

In 1813, at the Union of the Faculties of Columbia College and the "Physicians and Surgeons," he was elected Professor of Materia Medica, and successively, in the various changes of this medical school, filled the chairs of the Institutes of Medicine, Medical Jurisprudence, and Obstetrics. He resigned in 1826, and took part in the formation of Rutger's College. For nearly twenty years, he was thus an assiduous and successful professor of various branches.

In the literature of his profession, Dr. Francis has been laborious. In 1810, in connection with Dr. Hosack, he founded the *American Medical and Philosophical Register.* His valuable edition of "Denman's Midwifery," with copious notes and an erudite prefatory history of the art of midwifery passed through several editions. "Cases of Morbid Anatomy," the "Value of Vitriolic Emetics in the Membranous Stage of Croup," "Facts and Inferences in Medical Jurisprudence," etc., are but a few of his many medical essays and monographs.

He was alike distinguished in the walks of general literature, and especially that of biographical and local history. It is here where his genial nature, his vivid recollection of olden times, and his lifelong intercourse with the most eminent statesmen, philosophers, authors, and artists, enabled him to occupy a position which few men can reach, and rendered his social and literary reunions so famous in literary and artistic circles.

The high esteem in which Dr. Francis was held by the profession can be no better shown than by the fact that he was chosen the first President of the Academy of Medicine of New York; beside numerous literary and scientific societies, he was a member of the London Medico-Chirurgical Society, and, with De Witt Clinton, an honorary member of the Wernerian Society of Edinburgh. He first noted, in a letter from London, June, 1816, the fact of the rare susceptibility of the human constitution to a second attack of pestilential yellow fever; he was the first therapeutically to employ croton oil, elaterium, and iodine, in this country, and to introduce them to the profession.

But the scientific and literary fame of Francis is too wide spread and well known, to need an extensive notice here. A few words regarding the MAN.

He was generous, noble in deeds of charity, a friend of all in need, and a liberal supporter of educational and charitable institutions. In his convictions, he was earnest, and it was this which gave his opinions decision and individuality that always entitled them to a hearing, and made him eloquent in simple scientific controversy or on festive occasions.

This earnestness of conviction, forming so eminent a trait in his character, was, perhaps, never in his life more strikingly exemplified than during the celebrated yellow fever discussion at the Quarantine Convention in New York, and in the Academy of Medicine. Well do we remember him, standing alone among his professional brethren, the advocate of the contagiousness of yellow fever, and yet while all around him opposed his views, undaunted and unmoved he followed what he considered his duty, and when, after an extempore address of over an hour, he took his seat, there was not in that assembly one who would not have conceded to him the palm of true eloquence, which is found only where earnest convictions move the mind. How much in this respect did he differ from many, who by rhetorical fanfarades and dramatic action, in

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vain attempt to do what earnestness and truthful conviction alone can accomplish.

When a physician dies it is but proper that his brethren should be informed of the cause of death. Francis died, it seems, of exhaustion, consequent upon the debilitating effects of a carbuncle, which had been opened. He was conscious to the last, and awaited death with serenity and resignation which his deep religious feelings afforded him.

The immense throng of men of all classes, who paid him the last respect, but showed that one of the men of the age had gone home, whose memory forms one of the landmarks in the history of our profession.—*Phila. Med. and Surg. Rep.*

Actions of Different Medicines on the Mental Faculties. By Professor Otto.

All stimulant and exciting medicines increase the quantity of blood sent to the brain. If this quantity exceeds a certain amount, then most of the faculties of the mind become over-excited. Nevertheless the degree of this action is observed to vary a good deal in different cerebral organizations; and it is also found that certain stimulants exercise a peculiar and characteristic influence upon special or individual faculties. Thus ammonia and its preparations, as well as musk, castor, wine, and ether, unquestionably enliven the imaginative powers, and thus serve to render the mind more fertile and creative. The empyreumatic oils are apt to induce a tendency to melancholy and mental hallucinations. Phosphorus acts on the instinct of propagation, and increases sexual desire; hence it has often been recommended in cases of impotence. Iodine seems to have a somewhat analogous influence, but then it often diminishes, at the same time, the energy of the intellectual powers. Cantharides, it is well known, are a direct stimulant to the sexual organs; while camphor tends to moderate and lull the irritability of these parts.

Of the metals, arsenic has a tendency to induce lowness and depression of spirits; while the preparations of gold serve to elevate and excite them. Mercury is exceeding apt to bring on a morbid sensibility, and an inaptitude for all active occupation.

Of narcotics, opium is found to augment the erratic propensities, as well as the general powers of the intellect, but more especially the imagination. Those who take it in excess are, it is well known, liable to priapism. In smaller doses it enlivens the ideas and induces various hallucinations; so that it may be truly said, that, during the stupor which it induces, the mind continues to be awake while the body is asleep. In some persons opium excites inordinate loquacity. Dr. Gregory says that this effect is observed more especially after the use of the muriate of morphia. He noticed

this effect in numerous patients, and he then tried the experiment on himself with a similar result. He felt, he tells us, while under the operation, an invincible desire to speak, and possessed, moreover, an unusual fluency of language. Hence he recommends its use to those who may be called upon to address any public assembly, and who have not sufficient confidence in their own unassisted powers.

Other narcotics are observed to act very differently on the brain and its faculties from opium. Belladona usually impairs the intellectual energies; hyoscyamus renders the person violent, impetuous and ill-mannered; conium dulls and deadens the intellect, and digitalis is decidedly antiaphrodisiac. Hemp will often induce an inextinguishable gayety of spirits; it enters into the composition of the intoxicating drink which the Indians call *bauss*. The use of *amanita muscaria* is said to have inspired the Scandinavian warriors with a wild and ferocious courage. Tobacco acts in a very similar manner with opium, even in those persons who are accustomed to its use; almost all smokers assert that it stimulates the powers of the imagination.

If the psychological action of medicines were better known, medical men might be able to vary their exhibition, according to the characters and mental peculiarities of their patients. The treatment of different kinds of monomaniacal derangement also might be much improved, and it is not improbable but that even a favorable change might be wrought on certain vicious and perverse dispositions, which unfortunately resist all attempts at reformation whether in the way of admonition, reproof, or even of correction.

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Diphtheria: Its Nature and Treatment, with an Account of the History of its Prevalence in various Countries. By D. Denison Slade, M.D.: Being the Dissertation to which the Fiske Fund Prize was Awarded July, 1860. Philadelphia: Blanchard & Lea. 1861. Pp. 85.

The prevalence of Diphtheria in this country, and the demand for recent treatises, have induced our publishers to issue the above monographs. The former one has also been simultaneously issued in London, Paris, Melbourn and Madrid.

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Not, of course, until the present epidemic has run its course, will any one be able to write the history of American Diphtheria. We must have a complete demonstration of all the features of the complaint, before its character can be known.

The history of Diphtheria has, of late, elicited a good share of attention. While nothing exactly like the Diphtheria of the Nineteenth Century is to be found in the ancient records, several diseases have prevailed that, from the accounts given, have possessed a very strong family likeness. As far as we know, Aretæus, who lived in the time of Domitian, (A.D. 50–80,) and who practiced in Rome, is referred to and quoted as having first noticed and described a form of disease similar to Diphtheria. He speaks of the throat being the seat of ulcers, covered with a membranous deposit, which occasionally extended to the wind pipe, when death followed from suffocation.

In Spain, as early as the Seventeenth Century, a disease was described under the name of "*garrotillo*," or *morbus suffocans*, which, it is supposed, was similar to our epidemic. The authors, Villa Riel, Fontecha and Herrera, who witnessed the disease, all agree in indicating the tonsils and palate as being primarily implicated—inflamed, ulcerated, and covered with white or bluish white membrane; while the last goes on to describe some eight varieties or stages of the disease. The first two varieties resembled the common sore throat, but prevailing simultaneously with the graver forms, Herrera regarded them as milder types, due to the same epidemic influence.

Early in the Seventeenth Century, also, the disease *(morbus suffocans)* showed itself in Naples and Sicily. In the latter place it raged with much severity, and is described by Alaymus and Cortesius. The throat affections overshadowed everything else; as a consequence, the disease was sometimes called *gulæ morbus*. Grades obtained here also, and were minutely described. The mild variety consisted simply in inflammation of the palate, tonsils, uvula, and excited but little apprehension; the malignant was attended with membrane in the fauces, extending occasionally to the posterior parts of the nose, or to the air passages, producing death by suffocation.

About the middle of the Eighteenth Century, the disease made its appearance in many parts of Europe, in Great Britain and in America. *Morbus strangulatorius* prevailed in London in 1737;

and in 1746 it prevailed in an alarming manner at Bromley and at Greenwich. To Dr. Fothergill the credit is due, of having given the earliest account of the complaint. His paper *(Account of the Sore Throat, Attended with Ulcers)* was published more than a century since (1748). Huxham published a dissertation on the *Malignant Ulcerous Sore Throat,* which prevailed at Plymouth from 1751 to '53. Huxham and Fothergill differ but little in their descriptions. Both speak of the throat as being the part primarily affected, and both mention the presence of false membrane on the tonsils, palate, and uvula, as the alarming circumstances of a case.

The first account of the "*Sore Throat Distemper*" in America, is that of Dr. Douglas of Boston, in 1736. The disease was very malignant, and attended with putrid symptoms. Giving an account of something similar, Mr. Cadwallader Colden wrote from New York, Oct. 1st, 1753, to Dr. Fothergill of London. Mr. Colden states that the disease visited all the British Colonies, appearing first in those places to which the people resorted for trade. Dr. Samuel Bard, in 1771, gave a description of an epidemic sore throat which prevailed in New York. He recognized the analogy between the disease and croup.

The *Diphtheria* of the Nineteenth Century has been described by *Bretonneau of Tour, in two memoirs communicated to the Académié Royale de Medécine* in 1821. It is with this Author, as all know, the name Diphtheria originated. The word "*Diphtheria*" has the following significations: "Skin," "Leather," "Parchment." The membrane, therefore, becomes the leading idea of the disease—the pathognomonic lesion. The following are some of the characters, as given by Bretonneau:

"At the beginning of the disease there is a circumscribed redness which is covered with semi-transparent coagulated mucus. The first layer, thin, supple and porous, may be still elevated by portions of unaltered mucus membrane in such a manner as to form vesicles. Often in a few hours the red patches visibly extend, step by step, through continuity or contact, in the manner of a liquid which is poured out on a plane surface, or which runs by striæ into one channel. The concretion becomes opake, *white and thick;* it assumes a membranous consistence. At this period it is easily detached, and adheres to the mucous membrane only by very delicate prolongations of a concrete matter, which penetrates into the muciporous follicles. The surface which it covers is usually of a slightly red tint, dotted with a deeper red; this tint is more vivid at the periphery of the patches. If the false membrane be detached and leave exposed the mucus surface, the redness, which appeared subdued under the concretion, re-appears,

blood transudes through the deep red points, the concretion re-appears, and becomes more and more adherent upon the points first invaded; it often acquires a thickness of several lines, and passes from a yellowish-white to a grayish and to a black color. At the same time the blood transudes with more facility, and constitutes those stillicidia which have been generally remarked by authors."

In 1831 Dr. Bell witnessed in Philadelphia an epidemic Diphtheria. Within the last five years the disease has been recognized in the epidemic form quite frequently, not only in Europe and Great Britain, but in the U. States. Dr. James Blake and Dr. J. V. Fougeaud have given accounts of its prevalence in California in 1858. Dr. Beardsley, of Milford, Conn., and Dr. Willard, of Albany, N. Y., have contributed papers on the disease, the former to the *Boston Medical & Surgical Journal*, the latter to the N. York State Medical Society. In the Western and Southern States the disease has prevailed for several years to an extent that has attracted much of the attention of the profession. Indeed, just now, in this portion of Ohio so complete has been the epidemic influence that all classes of the community have been more or less affected.

If we were to attempt a description of the disease, as it has prevailed with us, we could not get along without making several varieties. A very mild variety was much the most general. It consisted simply in a sense of lassitude, slight fever and sore throat. The throat affection was characterized by redness and swelling of the tonsils and soft palate, with but little sensibility of the parts; so little, indeed, that many were not aware of the throat trouble until the physician called attention to it.

Another variety, with great propriety, was denominated the *membranous*. In this the initial symptoms varied but little from what they were—in the mild variety, except in intensity. Here, however, was found the *pathognomonic* lesion, the *false membrane*. The membrane was usually first noticed in small patches, on the tonsils or palate. Once in a while the whole of the fauces was covered over when first examined. In grave cases the membranous exudation extended to the posterior nares, the esophagus, and windpipe. In a case, that was post mortemized, the membrane extended from the trachea into the smaller of the bronchial tubes, completely blocking them up. Other types were present, differing more or less from what we have sketched. A very few cases occurred in this region that appeared very malignant from the

first, the first stage of the disease being characterized with great prostration and the appearance at once of copious depositions of false membrane in the air passages.

The time occupied by the disease in running its course was by no means the same in all cases. Mild cases seldom lasted over three or four days, though more or less was usually felt of the effects of the disease for several weeks. The severe cases attended with extensive membranous exudation required a longer time to run their course, though as far as we could observe, we saw nothing like a law of self-limitation.

With regard to the diagnosis of this disease there is certainly considerable confusion among authors, and this is shared in by those before us. Is the Diphtheria of our day the same disease as the 'Angina' of the *fathers?* the 'Egyptian Ulcers' of *Aeretæus?* the 'Malignant Squinsy' of *Brooks* and *Ball?* the 'Gangrenous Squinsy' of *Boerhaave?* the 'Epidemic Squinsy' of *Suan?* the 'Garrotilla' of *Villa Real?* the 'Ulcerous sore Throat' of *Huxham* and *Fothergill?* the 'Angina Maligna' of *Cullen?* the 'Scarlatina Maligna' of *Rush, McIntosh* and *Eberle?* the Croup of *Home* or the Dipththeria of *Bretonneau?*—Is, we inquire again, the epidemic now in our midst identical with that form of disease to which most, if not all, of the above names apply? We doubt very much whether history furnishes any thing exactly like the epidemic now prevailing. It is true, it agrees with all the throat affections of ancient and modern times, by whatever name they have been called, in having the throat as the seat of a local trouble; but it differs from most, if not all of them, in possessing exclusive lesions of its own. We recognize in the history of the so-called throat diseases several very distinct maladies. What went under the terms "*angina*" and "*paristhmia*" during the first centuries of the Christian era, and previously to that period, we most likely would now call tonsillites palatitis or uvulitis. The "*gangrenous squinsy*" of Boerhaave and the "*ulcerous sore throat*" of Huxham, are most likely the same as the "*cynanche maligna*" and the "*scarlatina maligna*" of Cullen and Rush. In the "*Garrotilla,*" however, of the Spanish physicians of the early part of the seventeenth century, we recognize something that looks like our epidemic. Bretonneau also evidently witnessed a disease similar to ours. No one can escape this conviction who reads his descriptions. He, however, erred in regarding it as being identical with Croup.

XUM

The identity of Diphtheria and scarlet fever has also been suggested by several writers. Huxham and Fothergill witnessed, without any doubt, an intermingling of the two diseases in the epidemics they described, and it is this circumstance that has obscured their descriptions. During the prevalence of Diphtheria in our locality it has often been found in connection with several diseases, but especially with scarlet fever and measles. The following are points of contrast with scarlet fever:

Diphtheria affects all ages alike; scarlatina is confined, as a rule, to children. The characteristic of Diphtheria is *false membrane;* scarlatina is only occasionally attended with this. Diphtheria has no characteristic eruption; scarlatina has. Diphtheria does not seem to protect the system against second attacks; scarlatina does.

It is very questionable whether any thing in the way of clearness has been gained by Bretonneau's effort at nomenclature. The word Diphtheria expresses but a single feature, *(false membrane,)* not peculiar to the epidemic that he, himself, described, but present in disorders widely different. We have the membrane in aphthæ, in scarlatina, in putrid sore throat, in tonsillitis, in croup, and it may be produced artificially by aid of cantharides. The prerequisites for its formation, as far as any thing is now known, is inflammation of a mucus surface or the absence from a cutaneous surface of the epidermis.

The group of morbid phenomena that has had the name Diphtheria applied to it, is now very generally regarded as indicating a constitutional disease; one, too, that may run its course without being attended with the least appearance of a membranous exudation. It is a *blood disease*, a real contamination of the blood, due, as there is pretty good reason to believe, to the agency of an atmospheric poison; and, from the evidence already accumulated, contagious and infectious. In severe cases the membranous exudation makes its appearance at some point or other of the mucous or cutaneous surfaces, and becomes, among the other lesions of a case, the first in point of importance. From such facts, it is perhaps right to say that it is a very common tendency, in severe cases, of the constitutional affection to ultimate in the production of false membrane.

The character of this membrane has been, and is now, the subject of considerable interest. The exudation varies from a quarter of a line to two lines in thickness. In many instances it is a soft pultaceous mass; in others it has a considerable degree of consistency—

chemically, it seems to be *coagulated fibrin.* The microscope resolves it into fibrillated texture, exudation cells, epithelium; and, in some specimens of the membrane, low forms of cryptogamic plants, *oidium albicans leptothrix, buccalis.* The membrane in Diphtheria is said to be distinguishable from other forms of exudation by the absence of blood vessels.

We see nothing special on the geography, topography, meteorology, etc., of Diphtheria. It has visited Asia, Europe, America, and the principal Islands. It prevails in high and low latitudes—in low and damp as well as in high and dry situations. At times it has prevailed as an epidemic; then, as an endemic, having been confined closely to a particular locality.

The works before us enumerate quite a number of complications and sequelæ. *Albuminuria,* first noticed in a case reported by Mr. Wade, of Birmingham, to the Queen's College, 1857, has been observed by others with some considerable constancy; though further research is necessary before we can ascribe to this symptom any positive value. *Paralysis* is a result frequently of Diphtheria. This affects very often the muscles about the mouth and larynx, giving rise to difficulty in swallowing, and impairment, and, in some instances, loss of voice. The paralysis also affects the neck and upper extremities. Impairment of vision, deafness, and nervous lesions, are sequelæ that not unfrequently make their appearance. "The nervous sequelæ of Diphtheria are not always in proportion to the severity of the previous illness, and do not occur exclusively after the severest cases, but sometimes follow comparatively mild ones. Their duration is uncertain, varying from two to three or four months, but the slighter affections may perhaps sometimes pass off in a shorter period than two months, and in all probability may be prolonged to the fourth month."

Bronchitis or pneumonia has frequently been noticed as a complication of Diphtheria. The presence of these troubles are of course denoted by the usual physical signs, and the expectoration of casts of the smaller bronchial tubes.

In this region Acute Rheumatism has occasionally been noticed as a complication, or perhaps rather as a sequel of Diphtheria. The rheumatic affection was characterized with the usual severe pain and swelling of the joints, the drenching acid perspiration, and the great excitement of the vascular system. In a few cases the *rheumatism* was itself complicated with *pericarditis.*

The manner of death in many cases, perhaps in the majority, is protracted, depending on exhaustion or long-continued impairment of the function of respiration. All, nevertheless, who have had much experience in the treatment of Diphtheria, have noticed, as a peculiar characteristic, the sudden death of patients. We take from Greenhow the following on this subject:

"Sudden death in patients the aspect of whose case is not alarming, or who appear out of danger, is a peculiar characteristic of diphtheria, and this circumstance has added greatly to the fear with which this disease has been regarded by the relatives of the sick and the public at large. One case of sudden death when the patient appeared to be improving has already been related (page 119,) and many others have fallen under the notice of my medical friends and correspondents. Mr. West has sent me the history of a young woman, aged twenty, who presented herself as an out-patient of the Queen's Hospital, Birmingham, suffering from diphtheria. She declined to enter the hospital, but continued to attend among the out-patients for three successive days, on each of which she walked a distance of a mile from her home for this purpose. The throat improved in appearance daily; but, notwithstanding this amendment, she became weaker, and returning home tired on the third day, she took some food and went to bed. She appeared very drowsy during the remainder of the day, was disinclined for exertion, refused nourishment, and continued in a dozing condition till the following morning, when she asked for breakfast. Whilst being lifted up to receive it she fell back fainting, and died before assistance could be obtained. Mr. Carr, of Blackheath, also mentions extreme suddenness of death as one of the most marked characteristics of true diphtheria, and adds that it occurs in an instant when the patient has the power of sitting up in bed, of speaking, and of swallowing.* Mr. Ritchie, of Leek, had such a case, in which he had discontinued his attendance, the throat being well and the sick person apparently convalescent. The patient suddenly became worse; there was vomiting, the surface of the body was cold, and there was great depression without hæmorrhage or other ostensible cause. When visited the patient sat up in bed and answered questions, but then, having laid himself back and stretched out his arms, he died before the medical attendant left the room. Another case of which I have notes was that of a child who died in its chair immediately after being examined by the surgeon.

"Sometimes sudden death has occurred after patients were able to resume active habits, and may perhaps have been induced, by over-exertion, whilst in the very depressed anæmiated condition produced by the disease. A boy, aged ten years, who had been suffering from diphtheria for five days, although well enough on the previous evening to hold the surgeon's horse, died on the sixth day of his illness. A carpenter's apprentice, convalescent

* Second Report of the Medical Officer of the Privy Council, p. 309.

from diphtheria, went home to visit his parents, who lived at a distance of three miles from his master's house. On his arrival he took a basin of bread and milk, went to bed, and died suddenly three hours afterwards. A man-servant, aged sixteen years, who had been ten or twelve days under treatment for diphtheria, seeming to be convalescent, obtained leave to go home and see his friends before returning to his occupation, and there died suddenly.

"Dr. Bellyse mentions a case of this kind, that of a boy, aged ten years, who, having been ill nearly three weeks, had so far recovered as to be able to go out; and, on the day of his death, walked to a farm-house at a considerable distance from his home. About ten o'clock the same evening Dr. Bellyse, on being summoned to see his patient, who had been suddenly seized with violent pains in the bowels about an hour before, found him sinking from exhaustion. Although relieved by fomentations and other remedies, he died very soon after the visit. A post-mortem examination was refused.

"Indeed death, either from syncope or the accession of collapse, fatal in a few hours after exertion, has so often happened when patients have appeared to be recovering satisfactorily, that convalescents from diphtheria cannot be considered out of danger until some time after the throat is well, and the very marked anæmia produced by the disease has disappeared. It is true that death, whether sudden or otherwise, usually occurs within a few days; but sometimes as late as the sixteenth or seventeenth day of the illness, or perhaps even later."

Pretty nearly all who have had much experience now agree on the general plan of treatment. In Bretonneau's paper, as well as in the writings that preceded this, an active treatment, such as bleeding, both local and general, blisters, mercurialization, etc., very generally prevailed. A very different view now obtains. The disease is very generally regarded as asthenic, and as a consequence amenable to an opposite class of remedies—tonics, stimulants, and a sustaining course of diet. That such, however, without qualification, should prove to be applicable to every variety of case, is not to be supposed. The disease occurs in very opposite conditions of the system; in full phlogistic habits, as well as in those where the tone of vitality is low. In the former class, the treatment would differ very materially from the latter.

We have seen no plan of treatment suggested based directly upon rational considerations. It is true that we know but little of the morbid anatomy, or the pathology. The advent, all the premonitory symptoms, point out at once the introduction into the system of a specific poison which deranges solids and fluids. The blood, in the estimation of all, is, to say the least, charged with an

excess of fibrin; and, although this may not in the majority of cases be poured out on mucous or cutaneous surfaces, this accident in grave cases is the leading feature, and the gravity of the case is usually regarded as having a direct relation to the quantity of membranous exudation. What, now, are our means for preventing an excess of fibrin in the blood? or for avoiding a precipitation of this substance upon inflamed surfaces? Is the excess of fibrin in the blood the result of disintegration from the various tissues of which this substance is a normal element? If so, the vocation of the remedy is plain—something is needed simply to arrest this destruction of tissue. Or is the fibrin in the blood the result of perverted nutrition? Such questions cannot yet be answered.

In the absence, therefore, of anything like positive information concerning the essential nature of the malady, the treatment must, of necessity, be conducted on empyrical principles. Anterior, as we have seen, to the time of Bretonneau, the active wasting plan obtained. The experience with the epidemic of our day is, however, largely in favor of the sustaining, strengthening plan. Both of the works before us, also, post up much evidence in favor of this plan, the result of European and American experience.

We have no time to consider treatment in detail. We agree with the authors we have been reviewing, that quite a large proportion of cases require little or nothing in the way of drugs. Care, patience, rest, the use of gentle laxatives and simple gargles, are the most of what will be required. The use of certain articles of the materia medica in this class of cases, however, has led to a number of therapeutic fallacies. Physicians have over estimated their sagacity and the value of medicines. In cases requiring medical interference, the tincture of sesqui-chloride of iron may be used throughout the course of the complaint, and is a remedy of undoubted value. The dose is from 10 to 15 drops every three or four hours. This preparation is also used as a local application to the fauces, either applied with a brush, or diluted and used as a gargle. Other preparations of iron, the vegetable tonics, hydrochloric acid, will be found useful in carrying forward the general indications of sustaining the system.

We find a diversity of opinion expressed in regard to local treatment. The volumes before us agree in the use of gargles in the early stages, as well as afterwards, where the throat is merely affected with inflammation. The artificial removal of the exuda-

tion by the probang, is, however, not thought to be beneficial. The membrane usually reappears, becoming thicker and covering a larger extent of surface. Occasionally, indeed, after the exudation has come away spontaneously it is followed by a second or third exudation.

In conducting the treatment, it appears highly necessary to avoid making abrasions of the mucous or cutaneous surfaces. This, of course, will render it improper to use blisters, cups, or any thing else that would destroy the epidermis.

During the acute, as well as the chronic stage, it is a matter of great importance to husband with a good diet the patient's strength. For this purpose beef tea, chicken-broth, arrow root, new milk, cream, eggs, etc., come into requisition. Convalescence in many instances is exceedingly tedious, months often elapsing and still the patient feeble. Under such circumstances, change of air and scenery, the use of wines and tonics, will often prove beneficial.

We have thus passed in review some of the more important points discussed by the works before us. Greenhow is an experienced chronicler of epidemics, and, with reference to diphtheria, all things considered, he has acquitted himself well. Dr. Slade writes his monograph with less experience as a writer, and with some disadvantage in the way of a geographical stand-point, our country having been only lately visited with the present epidemic; while, on the other side of the Atlantic, the period for observation has been much longer. Dr. Slade, however, presents a very valuable *resume* of the disease in America, and is entitled to the thanks of the profession, as well as to the "*Prize*" of the FISKE FUND.

Both of the monographs are nevertheless incomplete. They fall short in furnishing a good portrait—a full account—of the disease. Such a desideratum can only be expected after the complete demonstration has been made.

Greenhow's work may be obtained of Bailliere & Brothers, 440 Broadway New York. Price, $1.25.

Thermo-Therapeia; or Heat-Cure. By Mr. ERASMUS WILSON. London, 1860.

Some weeks since we had laid on our table a short monograph on the above subject, by Mr. Erasmus Wilson, the well-known

Author of "Human Anatomy," and "A Treatise on Diseases of the Skin," etc.

Somewhat acquainted with the author's performances in the departments alluded to, we were not indifferent to know what he had to say on "Heat-Cure," or the treatment of diseases by *hot air*.

This paper commences by reciting the well-known experiments concerning the degree of elevation of temperature that may be sustained with impunity; like, for instance, the experiments of Sir. F. Chantrey, whose workmen were accustomed to enter a furnace with a red-hot floor, the air of which was at a temperature of 350°; and those of the Fire-King, Chabert, who was in the habit entering an oven whose temperature was from 400° to 600°.

The author next reviews the history of the "Heat-Cure," giving us not only an account of the estimate placed upon it by ancient physicians, but also a description of the fixtures used anciently in the heating process, such as the *frigidariums*, the *caldariums*, the the *calidariums*, the *sudatoriums*, the *vestariums*, the *cumberbunds*, the *calumbariums*, etc., etc.

The author details his views on the value of the "Heat-Cure" from the inspirations of a little self-experience. He went in the winter season, at a bitterly cold period, and subjected himself to the private "Thermæ" of his friend, Mr. Witt. The temperature of his first bath was 135° Fahrenheit. He states, "while within this hollowed nook, anxiety and care and fatigue, like the burden of Bunyan's Christian, seemed to fall from my shoulders. I stretched forth my limbs in peace and enjoyment, the brain seemed to think more lightly and pleasantly, and my ideas flowed brightly and calmly."

Mr. Wilson also states the effects of the hot air bath on his esteemed friend, Mr. Witt:

"My friend Mr. Witt in the course of a few minutes was streaming with perspiration, which ran down his face in rills and dripped from his elbows and finger ends in continuous drops. * * I was struck also with the rich and healthy complexion of his skin—it took its hues from the free circulation of the pure arterial stream through the capillary plexus of the derma—as he drew his fingers forcibly across his breast, the white traces left by their pressure were instantly replaced by the glowing vermillion of the arterial blood. There were no gorged capillaries in the skin; no venous

transformations in that cutaneous plexus; no deposits of unhealthy coloring matter, either in the cuticle or in the tissues beneath; no pallor, no excess and no deficiency of fat; no choked pores, no wrinkles from the loss of elasticity and contractility of the fibrous and omuscular structure of the crium; no abnormal sensibility of the nerves; all was as nature made it, perfect and beautiful. I looked for the first time in my life on a really healthy skin. * * * The habitual use of the 'Thermæ' removes discolorations of imperfect eliminations by drainage through the perspiratory system, and while it gives health to the skin, bestows health on the entire economy."

Our author goes on to state that he has numerous examples of the value of the "Heat Cure" in the treatment of disordered blood, rheumatism, neuralgia, catarrh, bronchitis, cutaneous eruptions, burns, fever. He also, looking at the "Thermæ" in a social and political point of view, thinks it admirably adapted for the preservation in health of large bodies of men, as the men of our armies, prisons, poor-houses, factories and schools.

In bringing forward a new remedy, or reviving an old one, it may be necessary that the individual to whose lot this duty is committed, have on hand rather a surplus of credulity, and warmth enough of temperment to border pretty well on the enthusiastic. Such traits seem to be often required in order to get public attention. We were, nevertheless, not quite prepared for the exhibitions of feeling in the paper before us. The broad and philosohical method of considering things alleged to be curative, and the enlightened skepticism that ought to obtain until evidence is sufficiently ample, are nowhere present in the author's performance.

The remedy, all would say, is suggested by the author as being of too general application, good for too many complaints. Then, again, the complaints are widely different in character, as different as burns and typhoid fever.

As far as we now see, there are but few points of contrast between this "Heat Cure" system and what is known here as "Thompsonianism," or the "*Steam* system," patented in this country by Dr. Samuel Thompson some years since. In both systems *heat* is the agent, not only for the cure of diseases, but good, as an everyday means, for maintaining health. In one the plan is *dry* air, (calor siccus) in the other *moist* air, (calor humidis).

Has all of the author's knowledge of physiology forsaken him?

XUM

His suggestion that going daily into a bath of 136° Fahrenheit, or a temperature higher than this, during the cold weather of winter, as a means of avoiding catarrhs, coughs, etc., and of facilitating the various detergent processes, or, in other words, of preserving the status of health, will strike right-minded men everywhere, we would suppose, with surprise. Is not the skin in each of the races of mankind organized to suit the climate that the race inhabits? If not, how explain the speedy death of an Esquimaux when taken to tropical regions, and the same result as regards the negro, when subjected to the continuous cold of the arctic regions? Then, again, is it not physiologically right that the sweat glands remain comparatively passive in temperate latitudes during the winter season? If so, why disturb them with hot air? Why, indeed, goad them into excessive action by artificial means of any kind? Nature seems, during the winter, to withdraw the skin from active duty; and shall we not, in our efforts to promote health, heed her example?

The paper before us has been written on small capital, so far even as experience on the part of the author is concerned. On this account we grant quarter to him for the present.

Compendium of Human Histology. By C. Morel, Professor Agrege a la Facul te de Medecine de Strasbourg. Illustrated by Twenty-eight Plates. Translated and Edited by W. H. Van Buren, M.D., Professor of General and Descriptive Anatomy in the University of New York, etc. Published by Bailliere & Bros., Broadway, No. 440, N. Y. 1861.

Prof. Van Buren has placed the profession of this country under obligations to him by his translation of this work. Although not as elaborate as several works of the kind already published, yet, owing to the excellence and fidelity of its plates, and the clear and concise manner in which all that is positively known of the science is set forth in the text, the work is admirably adapted to the wants of the student.

The department of anatomical science most progressive at the present day is *Histology*. It now forms the basis of modern physiology and pathology; but still it is in its youth, and the number in this country engaged in its cultivation is entirely too small. It is

to be hoped the present volume, which presents the subject in a very attractive form, will stimulate more attention.

On "*cell-development*" we extract the following:

"Every cell must derive its origin from a previously existing cell. In the present state of science but two modes are known in which cell-generation is accomplished in human histology—*indigenous* generation, and multiplication by *cleavage*."

From this it seems the author sides with those who deny the doctrine of *free* cell-development, or the development from a homogenous fluid. Kalliker is rather of the same opinion, though he does not know how to account, without some such theory, for the development of the chyle, lymph, splenic, and thymus gland corpuscles. He thinks the free cell-development theory, however, applicable in an eminent degree to pathological productions, as, for example, to the cells in pus and exudations of all kinds.

The doctrine of *free cell*-development, although adopted by our late authors, Peasly (Human Histology) and Leidy (Human Anatomy), is scarcely tenable. Indeed, the evidence in its favor amounts to but little, unless it can be shown that the first-formed particles that make their appearance in animals cannot have derived their origin from pre-existing formed particles, either by the detachment or fission of the latter. How is it possible to determine that the corpuscles, granules or nuclei are not in a given case derived from the blood, or from the tissue of the part where they are found?

Editorial and Miscellaneous.

Commencement of Starling Medical College.

The commencement exercises of Starling Medical College took place on the evening of the 28th of February, in the Westminster Church of this city. The Annual Address was delivered by *Dr. James Hogue;* the Valedictory by *Prof. T. G. Wormley, M. D.*

The degree of Doctor in Medicine was conferred on the following gentlemen—names of Theses appended:

B. F. Culver, Use of Mercury in Inflammation; A. E. Isamin-

ger, Report of a Case; Jas. P. Welch, Amenorrhœa; Joshua Worley, Diphtheria; A. F. Smith; Scarlatina; W. A. Bivans, Typhoid Fever; R. L. Murch, Pneumonia; Jas. M. Foster, Relations between Body and Mind; C. R. Klein, Diphtheria; P. A. Willis, Fracture of Femur; William Watt, Iron as an Antidote to Arsenic; J. N. Ellsberry, Diphtheria; N. Wheat, Acclimation; J. M. Hall, Pneumonitis; O. G. Field, Medical Ethics; J. N. Lee, Delirium Tremens.

These exercises closed up the fifteenth Course of Lectures in this Institution. Its friends have been gratified in witnessing lately some very efficient efforts in getting up a museum and facilities for teaching. These efforts will be continued, and the Faculty of the college take this opportunity to express thanks to those physicians who have contributed to the museum heretofore, and hope when any thing worthy presents in the future, that it will not be forgotten. Pathological specimens will always be very acceptable, as well as rare normal specimens in any of the departments of nature.

A *Summer Course* has been instituted, to which students who attend the subsequent winter course are admitted free of charge. This is an approximation to what obtains in England and on the Continent of Europe. The student by this arrangement may spend eight, out of the twelve months, if he thinks proper, in attending lectures. We invite those having charge of the education of young men for the medical profession, to this arrangement. To say the least, no one can resist the conviction that the measure affords a guaranty for a higher order of qualifications. The ensuing summer course, as may be seen by the advertisement, commences the 1st of April, and continues to the 1st of July.

Dr. L. M. Lawson having returned to Cincinnati, will continue the practice of his profession as usual.

Wayne County Medical Society of Iowa.—We are very happy to notice that in the far west the disposition to organize Medical Societies and support them keeps pace, *pari passu*, with the energy of the people in everything else. It gives us, too, special pleasure to see the names of our old students in connection with such enterprises.

The following officers were elected to act until the first Monday in January next:

Dr. John Boswell, President; Dr. A. G. Field, Secretary; Drs. Payton, Field and Hatton, Censors.

It was then agreed that each of the following gentlemen should deliver a course of lectures upon the subjects respectively affixed to their names:

John Boswell, M. D., General Therapeutics. Daniel Payton, M. D., Human Physiology. Dr. John Hatton, Theory and Practice. A. G. Field, M. D., Human Anatomy.

Books Received.—Transactions of the American Medical Association for 1860.

Practical Treatise on Phthisis Pulmonalis, by L. M. Lawson.

Diseases Peculiar to Women, by Hugh L. Hodge, M. D.

Epitome of Surgery, by Breadnell Gill, M. D., House Surgeon, lately of London Hospital.

Diseases of the Lungs, by Walter Hayle Walshe, M. D., Leidy on Human Anatomy, O'Reilly on the Placenta, &c., have been on our table for several months, and are also laid over for future review.

New Medical Journals.—The Baltimore Journal of Medicine, edited by Prof. Ed. Warren, M. D., bi-monthly.

The Berkshire Medical Journal, a monthly, edited by Dr. W. H. Thayer and Dr. R. C. Stiles, Professors in the Berkshire Medical College.

Medical Journal of North Carolina, published under the auspices of the State Medical Society, edited the present year by Dr. C. E. Johnson and Dr. S. S. Satchele.

Sir Benjamin Brodie.—This distinguished gentleman lately underwent an operation for the extraction of cataract. The profession is aware that Sir Benjamin has been afflicted for some time with disease of the eyes. It is to be hoped that he is now relieved. The progress of the case was favorable at last accounts.

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Ohio State Medical Society holds its next annual session at White Sulphur Springs, commencing second Tuesday in June.

It is a rule in Paris, that all surgeons who hold position in the hospitals by appointment from government, shall resign on attaining the age of sixty. Ricord, whose fame is coextensive with medical science, was born in December, 1800, and has reached the age when it became necessary for him to retire from the Hôpital du Midi, where he has observed and taught for thirty years. Before the day arrived for his legal retirement, Ricord resigned the chair, which has since been filled by the appointment of M. Cusco.

The friends and admirers of this renowned syphilograph united in an expression of respect, by giving a banquet to his honor, which came off at the Hôtel due Louvre, on the 27th December. A writer in the *Union Medicale*, in describing the scene, calls it an ovation, and thus enthusiastically gives the result of his impressions—á magnificent, charming fete.—*Amer. Med. Monthly.*

The correspondent of the *Lancet* describes the occasion as follows:

Parisian Medical Banquet.—The banquet given to M. Ricord by his *confreres* came off on Thursday the 27th ult., at the Hôtel du Louvre. The great dining-room of this establishment, itself one of the lions of Paris, afforded hospitality to about 200 members of the medical profession, who assembled for the double purpose of doing homage to the great syphilograph and justice to a very copious and *recherche* dinner. A more cosmopolitan gathering it would have been difficult to collect; for although the French element did, in the main, predominate, yet Great Britain, Germany, Sweden, Russia, Greece, Italy, the United States, and South American republics, were all duly represented on the occasion. Strange to say, that with one honorable exception, none of the Professors of the Faculty of Medicine were present to take part in the public expression of regret conveyed to M. Ricord on Thursday evening. The exact meaning of this negative demonstration on the part of the members of the official medical school of Paris, in a sense hostile to the great syphilograph, is not very evident. Jealousy, arising from professional rivalry, is stated by some as being concerned in the matter. The public consequently will regard the absence of the Faculty from the banquet of Thursday but

as another instance of personal animosity and narrow-minded ingratitude, assuming an official disguise for the indulgence of a petty feeling of revenge. The honorable exception referred to was, I need hardly say, M. Trousseau, who, following the impulses of his manly and independent character, seemed by his presence to protest against the unjust neglect of his colleagues. Owing to the absence from indisposition of M. Gubler, the honor of proposing the health of M. Ricord devolved upon M. Amedee Latour, editor of *L'Union Medicale*, who, in an excellent and effective speech, paid a flattering tribute to the man through whose single-handed exertions the "enseignement libre" had so effectually distanced the "enseignement officiel." Next followed M. Diday of Lyons, one of the most devoted supporters of the Ricord doctrines, and editor of the *Gazette Medicale*, of that city, and with Mr. Costello, who addressed the company in English, and represented the "grateful and admiring" foreigner generally, the complimentary discourses concluded, when M. Ricord rose, and with considerable emotion replied—"I can give no better rejoinder to all I have just heard, to all the flattering terms which you have in the warmth of your friendship applied to me, than by the expression of my most heartfelt gratitude. Your intention has been by this splendid *fete* to recompense thirty years of labor, of hospital service, and clinical teaching. In no other manner could you have fulfilled your own wishes and gratified my feelings. * * * I see around me my well-beloved pupils, the elders amongst them already professors, and the juniors following in their steps with giant strides, and holding out promise of a brilliant future. In presence of such disciples, I feel that I can safely rest on my oars, well assured that you will finish whatever may have been left incomplete in the work we have begun together. Amongst the friends present to whom I would especially express my gratitude, let me name the worthy representatives of the press, that great bulwark of our interests, both scientific and professional. Amongst you, it is true, I have occasionally encountered most powerful antagonists, but much more frequently warm and generous supporters. * * * In terminating this toast let me cite two lines of Pope, which I used when a young man as the motto for my inaugural thesis, and the truth of which you have often proved to me—

> "Man, like the generous vine, supported lives,
> The strength he gains is from the embrace he gives."

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To you all, then, my dear friends and *confreres*, who have attached yourselves to me, and who have always supported me, let me express my thanks, my eternal gratitude, and unalterable friendship."

THE SECOND DEGREE.—At the recent meeting of the Medical Society of the State of New York, the Committee on Medical Education reported in reference to the second degree. We most heartily agree with all the committee say in regard to the necessity of a more thorough education, an extension of the term of study, as well as the courses of lectures, more strict requirements regarding a good preliminary education, etc. Yet, we cannot perceive the correctness of the logic with which the committee oppose the so-called "Second Degree." The two chief arguments are contained in the following sentences of the report:

"As regards the argument of the necessity of a second degree, because of so many irregular practitioners having assumed the title Medicinæ Doctor, to refute it, it will be only necessary to ask why, if the first degree has been so freely seized upon, may not the second and higher degree be equally easy and freely assumed?

"There will be active advancement or elevation of the standard of medicine, unless the reform commence with the course of education itself, instead of with the degrees conferred, which degrees, like the coin stamp, may be impressed upon the base metal as well as that which has the true ring of gold."

In regard to all this, we have to say:

1. The title of Medicinæ Doctor has not only been *assumed* by many irregular practitioners, but it is actually *bestowed* upon them by chartered schools, regular and irregular, according to law. Hence, the question is not one of mere individual "assumption," but of *legislation*.

2. The very fact that "M. D." has been so freely "*seized upon*," and, we may add, *bestowed*, and the impossibility to have a uniform high standard adopted by those who bestow the title, regular and irregular, renders it desirable that there should be a second title, emanating from an incorruptible source, whence it will be impossible to be seized upon so freely, and whence it will not be bestowed except to those who deserve it.

3. The source from which the title should emanate must be impartial, connected with no private or personal interests, be removed from all legislative and political influences, and REPRESENT THE

PROFESSION. Such a source would be the American Medical Association.

4. Coming from this source, the higher degree will neither be equally easy and freely assumed, nor will it be unworthily bestowed.

5. The committee are most unfortunate in their illustrations. The very fact that the coin-stamp may be impressed upon the base metal, and that so much spurious coin is circulating, shows the imperative necessity of having a standard ASSAY OFFICE, which may examine all the coin, and countersign, by the new title, that which has the true ring. We cannot afford to wait till the counterfeiting establishments are all broken up, or the counterfeiters morally reformed. This must be the work of time. Meanwhile, let the American Medical Association establish the "ASSAY OFFICE," and, unless weightier objections are advanced than those of the New York Committee, let us have the second degree.—*Phila. Med. and Surg. Rep.*

DIPHTHERIA.—Dr. Asa Horr, of Dubuque, Iowa, writes as follows to the editor of the New York *Medical Times:*

Diphtheria has been prevalent in this vicinity during the past six months, and the cases of late seem rather increasing in frequency and severity. Children from two to ten have been the principal subjects of attack, although infants and adults have occasionally suffered from its mildest form. It seems to have no necessary connection with scarlatina, often preceding or following, and sometimes co-existing with it. In most instances, the affection has been very mild in character, but sometimes has proved rapidly fatal.

The treatment most generally pursued has been chlorate of potassa internally, cauterization with nitrate of silver, cold cloths and anodyne embrocations to the tumefied cervical glands, and the free exhibition of stimulants and tonics, with liberal diet throughout the disease. The writer has used with good effect chlorate of potassa in *tar water*, for the removal of the fœtor and the detachment of diphtheritic incrustations. It was administered internally, used as a gargle, and also for a nasal injection. In some of the severest cases of late, Prof. Woodward's mercurial plan has been resorted to with satisfactory results.

The following letter, on the same subject, is from Dr. J. W.

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Bright, of Lexington, Ky., and is published in the *St. Louis Medical and Surgical Journal:*

I received your letter a few days since, requesting my mode of treating diphtheria. In reply, I would say, I give the muriate of ammonia in full doses—say, to a child eight years old and upwards, ten grains every two hours (in solution), and ten drops of the sesquichloride of iron in the intermediate hours, and these are not to be omitted for thirty-six hours; then rest four or five hours, and give them again in like manner. Continue this treatment for four or five days, according to circumstances; but at first cleanse the stomach with a gentle purgative, if the bowels should not act, once in twenty-four hours give castor-oil and ol. terebinth, one ounce of the former to one ounce of the latter. If the diphtheritic crust forms, or has formed to a great extent in the throat, remove it with a fine sponge tied on a stick; the sponge should be wet with a solution of the pure nitrate of silver, forty grains to the ounce, or the sulphate of copper, one scruple to the ounce of water; this should be used only once a day. The cure should be completed by the use of tonics; I have found beeberine the best; diet nourishing.

I have treated three hundred and thirty-four cases after this method without the loss of one, and am now fully satisfied it is the proper mode of treating the disease.

Unicorn Uterus.—Twelve cases have been collected by Prof. Kussmaul, *(Heidelberg Verhandl., V.)* They allow the following conclusions: Menstruation is the same as with a normal shaped uterus. Sterility is not a necessary consequence of the deformity, but is, when present, dependent upon some other abnormity; for instance, occlusion of the oviduct. The developed horn, as well as the rudimental one, may admit the reception and development of an impregnated ovum; but this will not take place in the rudiment, except when no communication exists between it and the other part. It is probable, however, that this communication is shut up by the pressure of the dilated vessels and the decidua. Women, with a unicorn womb and one ovary, may give birth to numerous children of both sexes, as observed by Chaussier. This fact destroys the old theory that the sex of the fœtus is dependent upon the ovary. The unicorn uterus does not prevent repeated gesta-

tions, and may even retain twins up to the full term; it does not cause abortion, if not combined with other conditions. The impregnated rudimental horn, on the other hand, is always liable to rupture, which usually occurs in the apex. The condition of a woman with a unicorn womb, during pregnancy, depends on the individuality. Delivery after gestation, in the developed horn, has never been attended by particular difficulties. Where the fœtus was contained in the rudiment, the case has been almost always mistaken for tubal gestation.—*Vierteljahrschr., Cin. Lan. & Obs.*

Funis Presentation Treated Successfully by the Posture Method.—Dr. S. Brandies, of Louisville, publishes three cases of prolapsus of the funis, once alone and twice together with one hand, in every one of which he managed to save mother and child by the method recommended some time ago in the *Lan. & Observer* by Prof. Mendenhall, to-wit: placing the woman on her elbows and knees, elevating her pelvis, then replacing the prolapsed parts and keeping them within the cavity of the womb until the head descends far enough to prevent further mischief. From a table added to the description of these cases, and comprising 177,184 accouchements, collected from the highest authorities, prolapsus of the funus is found to occur about once in 264 deliveries. The same authors testify to a mortality among the children so born of one in 182, thus showing clearly enough, that accouchers have not been very successful in treating this kind of labor.

The posture method is only admissible as long as circulation exists in the funis; even if the circulation is feeble, it may soon be restored after the impediment is removed. The os uteri must be sufficiently dilated, and the liquor amnii partly retained. When the liquor has all escaped, and the uterus is firmly contracted over the child's body, every effort for the reduction of the prolapsed funis will be in vain.—*Louisville Med. Jour.*

Woorara.—Dr. Vella, the physician who applied this substance in a case of tetanus on the battle-field of Magenta, reports to the Academmie des Sciences a number of experiments made by him to establish its value as a therapeutic agent. He claims that woorara, besides being a sovereign remedy in tetanus, is almost an antidote for strychnia, to which conclusion he has come from his experiments upon dogs.—*Seance du.*

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THE LOUISVILLE MEDICAL NEWS.—We have just received the December, 1860, number of this journal. With this number the *Medical News* ceases to exist. Cause: want of *paying* subscribers. It is also several months since we heard anything from the *Louisville Medical Journal*, and we begin to fear it, too, has come to an untimely end. With men of decided editorial ability, with abundant material for sustaining a first-class medical journal, it is a great shame that the friends of *medical journalism* in Kentucky have not exerted themselves with more zeal for its support; at *least* one good medical journal should be sustained in Louisville, and *well* sustained. We part company with Dr. Benson with sincere regret.—*Cin. Lan. & Obs.*

ON THE REGENERATION OF NERVES. BY OTTO HJELT.—In this paper, which is accompanied by very beautiful illustrations, the author does not agree with Waller in believing that the process of regeneration in divided nerves is to be regarded as a new growth of nerve tubes, proceeding from the central end to the finest peripheral branches. He finds the process to consist in an excessive production of nuclei in the central as well as in the peripheral portion of the injured nerve. This nuclei-development causes the swellings upon the ends of the divided nerves. The nuclei unite by processes so as to form a regular network of long rows of nuclei connected to each other. These nuclei belong to the connective-tissue lying between the tubes. All do not unite to form this net-work, but many undergo a process of fatty degeneration. The processes connecting the longitudinally-arranged nuclei become broader, their contours more distinct, and a differentiation of sheath and contents occurs. The nuclei now appear as varicose swellings on the young nerve tubes, whilst these become more and more indistinct. The contents are granular, and next the sheath of the tube a clear marginal layer is deposited. The same process occurs in both of the nerve ends, but it is most active in the central one. The author supposes that a great part of the old nerve tubes unite with these newly-formed fibres. He has never met with newly-formed fibres in the course of the peripheral distribution of nerves from which a part has been cut out; but he has seen primitive nerve fibres in a more or less advanced state of fatty degeneration. These latter fibres have probably not had

their connection with the new fibres established. An exudation deposit Hjelt has never seen. The essential part of the process consists in an excessive formation of nuclei, a connective-tissue formation proceeding from the nuclei of the neurilema. "Since Virchow first proved that cell elements occur in the connective-tissue, he has only described the changes which these may undergo without changing their essential character, but he has also shown convincingly that it is to these cell elements that new formations of different kinds owe their origin."—*Edinburgh Medical Journal*, from *Archiv für Pathol. Anat. und Physiol.*

The Act of Pennsylvania Regulating the Sale of Poisons.—The attention of our readers is directed to the communication at page 117, in relation to the law on the sale of poisons. It will be there observed that according to the construction of the law, by a member of the bar, the liabilities of apothecaries and others who retail poisons, is much greater than at first was supposed, and that difficulties may occur in which the apothecary, with every intention of doing right, may get himself into trouble. We do not believe this mode of construing the law would be upheld by a jury, as against an apothecary, in a case that was reasonably within the usual action of physicians. We believe every apothecary who has a just regard to his reputation would hesitate to put up the prescription of a well known physician, which, from its deleterious character, might do mischief, and therefore he would be much less likely to do it on a false one intended for illegitimate purposes. The law does not say that the dispenser shall know the writer of the prescription. For the same reason that we do not justify an apothecary in dispensing a genuine prescription that evidently conveys the probability of error on its face, we do justify him in putting up a properly drawn prescription that conveys the probability of correctness, though it prove to be not written by a graduate. The law does not define who is a physician. The same power that made the law, grants the authority under which Eclectics, Homœpaths, Veterinary Surgeons, and other irregular practitioners practice medicine, and it would hardly intend to confine the right of prescription-writing to the regular practitioners of medicine.

Further, we do not agree with Mr. Bonsall in believing that the law applies to the regular preparations of the Pharmacopœia in which any of the five prescribed poisons may be used—as Fowler's Solution, Laudanum, Syrup of Wild Cherry Bark, Tincture of Nux Vomica, etc., else it would be necessary to label those preparations "Poison," when prescribed by a physician, a course which would hardly be approved by the Faculty. In relation to the meaning of the expression "personal application of some respectable inhabitant of full age," we feel more doubt—and would be glad to know whether the law really means that the head of a family only is an eligible person for a purchaser of poison, who has no power to delegate his right to a servant, however well known the latter may be to the seller of the poison. If this be so, the apothecary should know it—because by far the larger portion of corrosive sublimate that has been sold for legitimate purposes to housekeepers, has been obtained by servants with or without a written request for the same from employers, the servants being of full age and known to the apothecary. Should such quibbles and strainings of the letter of the law be, as has been suggested by Mr. Bonsall, capable of being sustained before a jury, it is high time that every apothecary was awake to the risk he runs in the conduct of his business.

We believe the only really valuable feature of the law, over and above the ordinary care of a respectable apothecary, is the requirement to keep a regular register, full and clear, of the several sales of poison. To us the law points in its spirit chiefly to criminal poisoning, and is intended to aid the cause of justice and to caution the dispenser.—*Am. Jour. of Pharmacy.*

True in the End.—Homœpaths make this boast—that the "Allopaths" dispense medicines, and they dispense with it. This may be partially true, owing to their losing their patients so very quickly.—*Punch.*